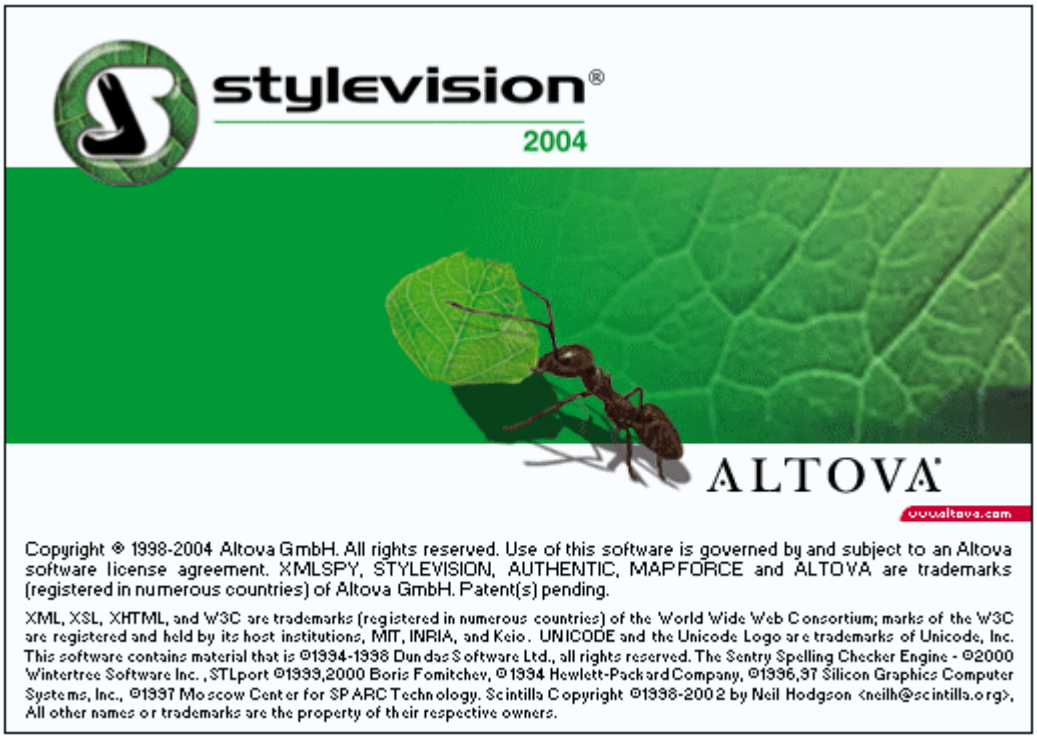
User and Reference Manual



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STYLEVISION 2004 User Manual

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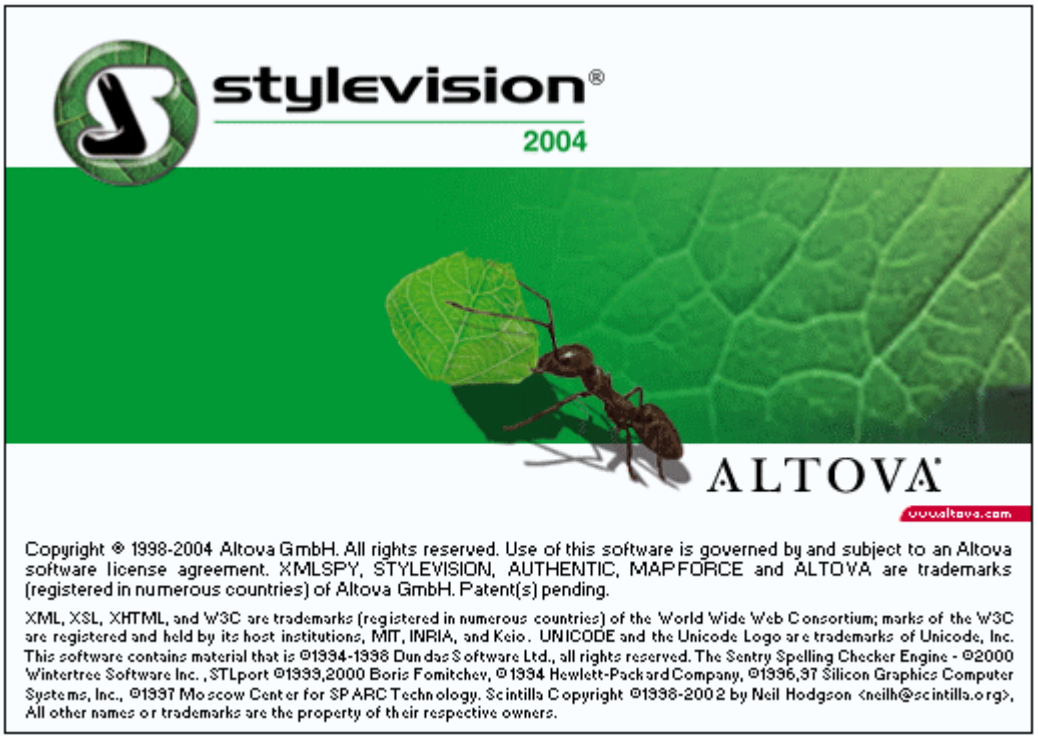
Chapter 1

Welcome to STYLEVISION 2004

1 Welcome to STYLEVISION 2004

stylevision® 2004 Enterprise Edition is an intuitive visual editing tool that enables Web developers to easily create STYLEVISION Power Stylesheets and XSLT stylesheets. STYLEVISION Power Stylesheets are used to control the display of, and entry of data into, XML documents in the Authentic View of Altova products. XSLT stylesheets are used to transform XML documents into HTML and PDF output. Additionally, STYLEVISION can also generate an XML Schema based on a database structure, an XML file with data from a database, and XSLT stylesheets for customized HTML and PDF reports.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Chapter 2

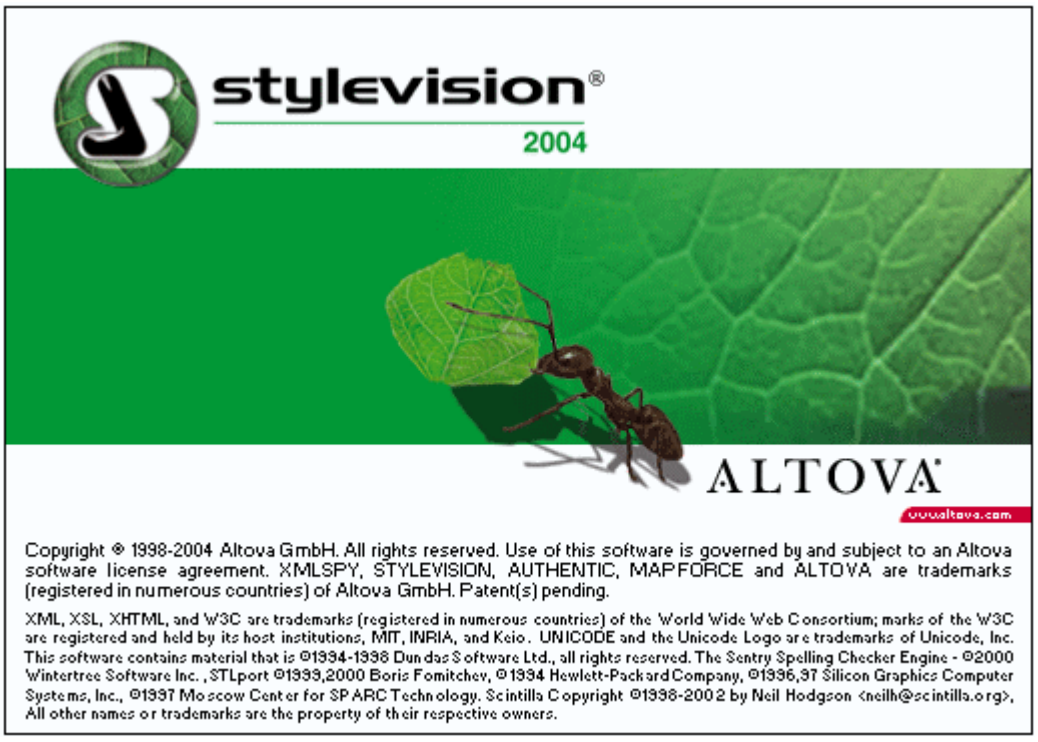
Introduction

2 Introduction

stylevision® 2004 is an intuitive visual editing tool that enables Web developers to easily create STYLEVISION Power Stylesheets and XSLT stylesheets. STYLEVISION Power Stylesheets are used to control the display of, and entry of data into, XML documents in the Authentic View of Altova products. XSLT stylesheets are used to transform XML documents into HTML and PDF output. STYLEVISION 2004 also allows you to use a database as a source, thereby making it a reporting tool for databases. Based on the design of the STYLEVISION Power Stylesheet that has been created, you can generate a report in HTML and PDF formats.

With **stylevision® 2004**, Web designers can quickly and easily create a single stylesheet using familiar GUI techniques. This graphical design document is simultaneously a stylesheet composed of stylesheet components and also a preview of the output document produced by the stylesheet.

Writing even the simplest XSLT stylesheets by hand is a difficult task. It requires an understanding of XSLT elements, the XPath language, and complicated rules-based document processing models. By abstracting away the underlying error-prone syntax, **stylevision® 2004** enables you to write stylesheets using considerably less time, thus leading to substantial cost savings.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2.1 About STYLEVISION

STYLEVISION 2004 enables you to write stylesheets using a graphical interface. You specify a schema (DTD or XML Schema) on which the stylesheet is to be based. This loads the schema into STYLEVISION in the form of a tree (hereafter called the source schema or just schema). The STYLEVISION Power Stylesheet is then created by dragging-and-dropping nodes from the source schema.

STYLEVISION 2004 also enables you to view the contents of a database. You design the display you want (this is the STYLEVISION Power Stylesheet) and preview the output in the HTML and PDF Preview Windows. You can then generate HTML and PDF output based on your STYLEVISION Power Stylesheet design.

STYLEVISION 2004 also enables you to import an HTML file and convert it to an XML file.

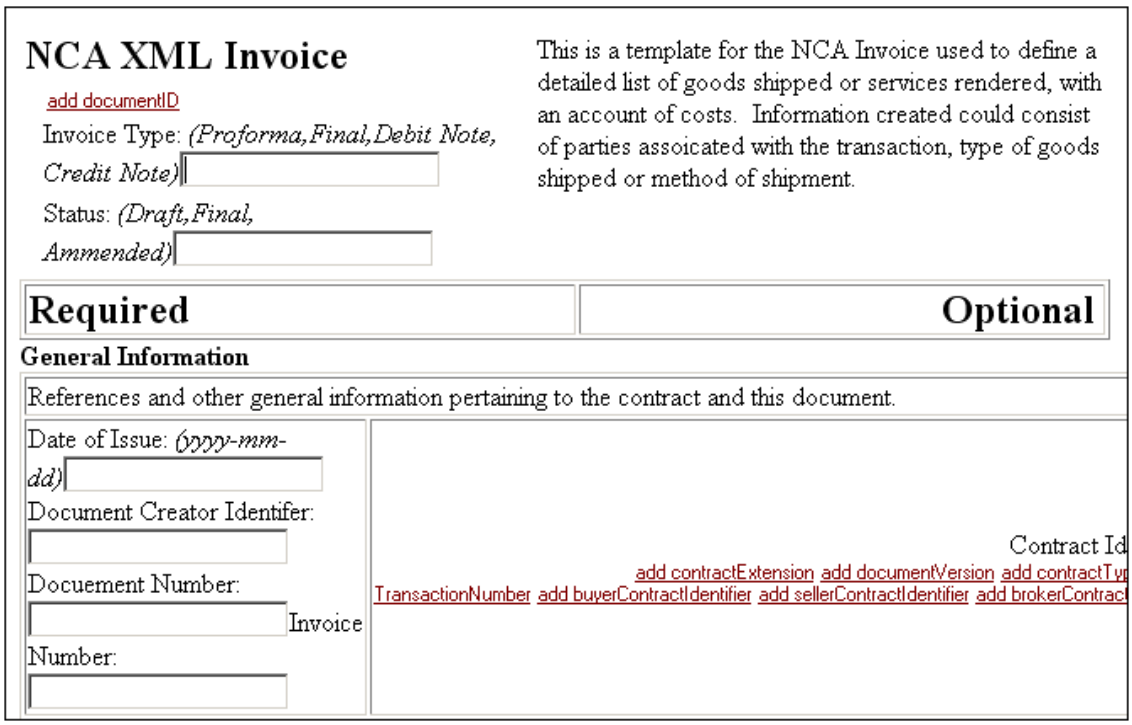
The STYLEVISION 2004 icon will appear in your **Start | Programs** menu after the application has been installed.

Authentic View in Altova Products
Authentic View is a WYSIWYG view that enables users to edit XML documents in a GUI. Authentic View is available as a view in the following Altova products:

- XMLSPY 2004 (Enterprise, Professional, and Home editions)
- AUTHENTIC 2004 Desktop Edition
- AUTHENTIC 2004 Browser Edition
- STYLEVISION 2004 (as a preview window)

Usage of Authentic View is described in the Authentic View documentation.

STYLEVISION Power Stylesheets for standard industry schemas
Altova's Authentic View package includes STYLEVISION Power Stylesheets for a number of standard industry schemas. Users can therefore immediately create an XML document based on a standard schema in Authentic View. The figure below shows a partial Authentic View of the NCA Invoice.


NCA XML Invoice
add documentID
Invoice Type: (Proforma,Final,Debit Note, Credit Note)
Status: (Draft,Final, Ammended)
This is a template for the NCA Invoice used to define a detailed list of goods shipped or services rendered, with an account of costs. Information created could consist of parties assoicated with the transaction, type of goods shipped or method of shipment.
Required
Optional
General Information
References and other general information pertaining to the contract and this document.
Date of Issue: (yyyy-mm-dd)
Document Creator Identifer:
Docuement Number:
Invoice Number:
Contract Id
add contractExtension add documentVersion add contractTyp
TransactionNumber add buyerContractIdentifier add sellerContractIdentifier add brokerContract

What this means for you, the designer of the STYLEVISION Power Stylesheet, is that you can easily customize any of the supplied STYLEVISION Power Stylesheets. Standard industry STYLEVISION Power Stylesheets are available in your STYLEVISION 2004 application folder, in the **`Examples/IndustryStandards`** folder.

STYLEVISION 2004 documentation
The STYLEVISION 2004 documentation consists of the following sections:

- An Introduction, which shows the relationship between STYLEVISION Power Stylesheets and Authentic View; explains how STYLEVISION is used with databases; describes the benefits of using Authentic View; and explains the concepts behind the working of STYLEVISION Power Stylesheets and Authentic View.
- A description of how to set up STYLEVISION and an explanation of the STYLEVISION interface: Getting Started.
- A tutorial to get you started using STYLEVISION.
- A How To Use section for commonly used STYLEVISION features.
- A section with tips on how to use STYLEVISION efficiently and correctly: STYLEVISION Tips.
- A Troubleshooting section for commonly encountered problems.
- A user reference containing a description of the various menu commands: STYLEVISION User Reference.
- A section on how to use the editing features of Authentic View.
- A description of how to convert HTML to XML.

This documentation is available in the following formats:

- Onscreen Help within the application (click the **Help** menu in STYLEVISION 2004 to access)
- Online Help at the Support Center at the Altova Website
- Downloadable PDF, available at Documentation Download at the Altova Website
- Printed User manual, which you can buy at Documentation Download at the Altova Website.

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2.2 XSLT and STYLEVISION Power Stylesheets

XSLT stylesheets are used by XSLT engines to transform one XML document into another XML (or HTML or text) document. In the transformation process, according to instructions in the XSLT, the XSLT engine selects content from the XML source, and places it in the output document. The selected content is usually placed as element content or as an attribute value. If the output document is intended for rendition on some medium, or is part of a processing chain that produces a document to be rendered, then the stylesheet can also be used to add presentation properties to the output document. The instructions for content selection, processing, placement, and formatting are all contained in the stylesheet.

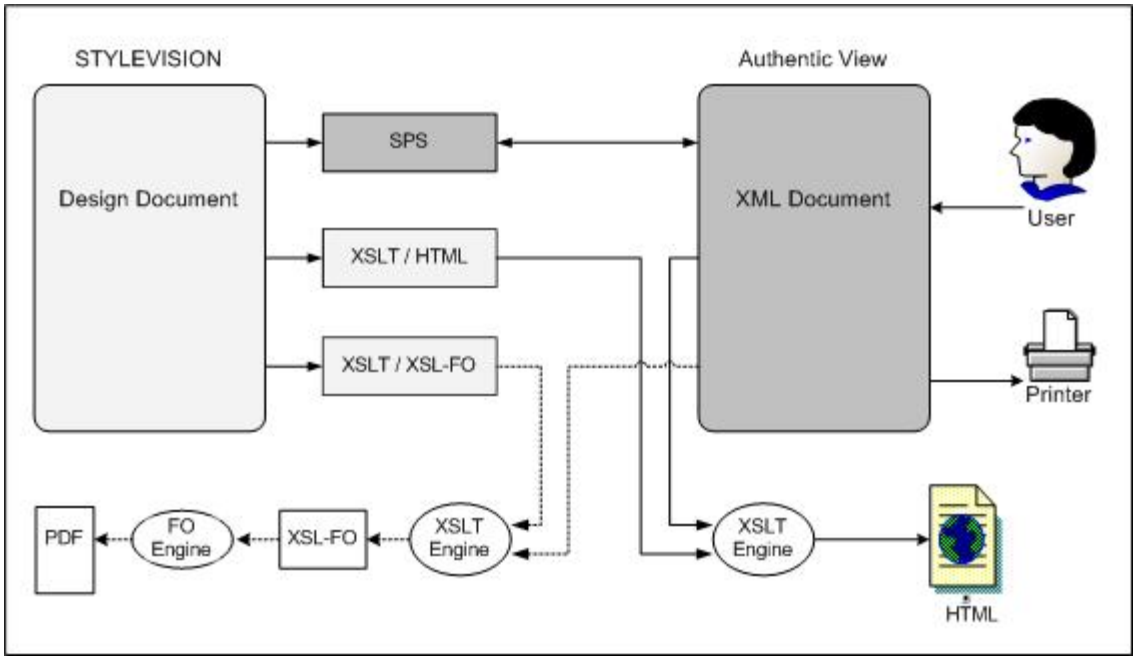
STYLEVISION enables you to create a special type of XSLT-based stylesheet, called a **STYLEVISION Power Stylesheet**. You do not need to know XSLT in order to create a STYLEVISION Power Stylesheet. Most of the XSLT constructs are created with mechanisms in the STYLEVISION interface, and you will be able to construct simple STYLEVISION Power Stylesheets after learning to use these mechanisms. In order to build more sophisticated stylesheets with STYLEVISION, it helps if you have a knowledge of XPath.

2.3 Uses of STYLEVISION Power Stylesheets

The stylesheet you create with STYLEVISION is saved as a **STYLEVISION Power Stylesheet**, or **SPS file** (so called because of its `.sps` file extension). A STYLEVISION Power Stylesheet can be used for the following purposes:

- To display an XML file in Authentic View. Authentic View is a graphical user interface that allows users unfamiliar with XML to enter content in the XML document. If your STYLEVISION Power Stylesheet is being constructed for this purpose, it should aim to make the Authentic View display of the XML document as user-friendly as possible. The WYSIWYG Authentic View of an XML document can also be printed directly to the printer. If this is a requirement, then attention should also be paid to the formatting of the document.
- To generate an XSLT stylesheet to obtain HTML output from the source XML.
- To generate an XSLT stylesheet to obtain XSL-FO output. XSL-FO, typically, would be further processed to obtain PDF output.
- To display a database in HTML and PDF formats, and to generate the HTML and PDF output files via the command line.

The illustration below shows how the output generated from the Design Document (created in STYLEVISION) can be used in an XML environment. Note that the PDF output options are available only in the Enterprise Edition of STYLEVISION.



Note: Since all editions of XMLSPY 2004 and AUTHENTIC 2004 Desktop Edition have an inbuilt XSLT processor, XML documents that you create in these two environments can be processed with a STYLEVISION-generated XSLT stylesheet directly from within these Altova products. Additionally, the Enterprise and Professional editions of XMLSPY 2004 also include support for external XSLT processors and FO processors. This means that, from within XMLSPY 2004 Enterprise and Professional editions, you can use either the inbuilt XSLT processor or an XSLT processor of your choice to obtain HTML and PDF output.

Databases and STYLEVISION Power Stylesheets
You can also use STYLEVISION to create and generate database reports in HTML and PDF formats. You create a STYLEVISION Power Stylesheet based on an XML Schema derived

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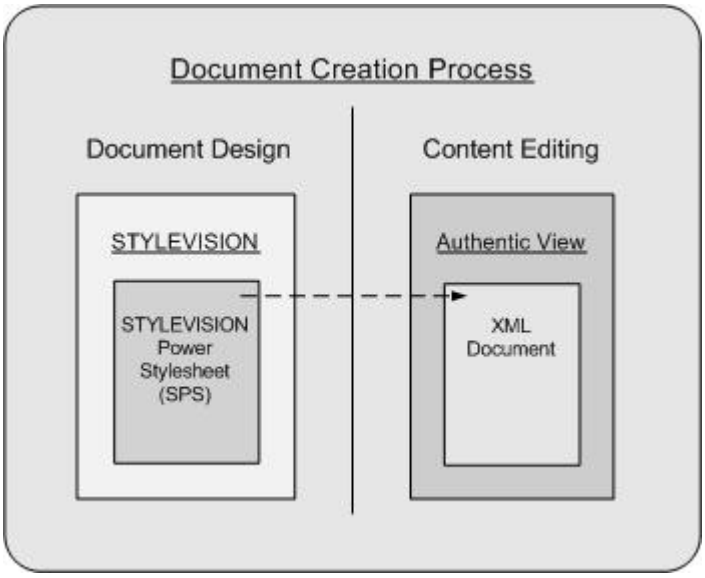
from the DB structure, and use this STYLEVISION Power Stylesheet to generate HTML and/or PDF output files. See Databases and STYLEVISION and the description of how to work with DBs for more details.

2.4 STYLEVISION and Authentic View

The STYLEVISION Power Stylesheet you create with STYLEVISION is used to control the display of an XML document in Authentic View (a document view available in Altova products; see Authentic View in Altova Products). With Authentic View, users who are unfamiliar with XML can easily enter XML document content without needing to learn XML.

A document creation process that involves Authentic View consists of two separate stages: **document design** and **content editing**. The STYLEVISION Power Stylesheet that is created (with STYLEVISION) in the document design stage is linked to the XML document in Authentic View and controls the way the XML document is processed and displayed.



Document design with STYLEVISION
In the document design stage, a developer—typically an XML-knowledgeable person—uses Altova's STYLEVISION to create an STYLEVISION Power Stylesheet.

The STYLEVISION Power Stylesheet basically processes the XML document to produce a display of the XML document. Most importantly, however, and unlike typical XSLT stylesheets, which are used to process **finished XML documents**, the STYLEVISION Power Stylesheet also provides mechanisms for the Authentic View user to **input data into the XML file**. Authentic View, therefore, provides users the opportunity to input XML data and to instantaneously preview the output of the XML document.

The STYLEVISION Power Stylesheet controls the data input as well as defines how the data should be processed and output.

The broad mechanism used is as follows. A STYLEVISION Power Stylesheet is based on a given schema. It specifies the outline of the XML document that will be displayed in Authentic View in terms of the schema's elements and attributes. It specifies how content entered in Authentic View is to be translated into XML document content. Further, it specifies how each of the schema components is to be processed and output. These processing definitions are used to produce the end-outputs: the Authentic View display and HTML and PDF files.

Content editing with Authentic View
Authentic View is an interface for editing an XML document that is linked to a STYLEVISION Power Stylesheet.

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- When a new XML document is created, it can be assigned a STYLEVISION Power Stylesheet, and the document can then be edited in Authentic View using the document template and controls specified in the STYLEVISION Power Stylesheet.
- Existing XML documents can be assigned a STYLEVISION Power Stylesheet (that is based on the same schema) at any time, and can be edited subsequently in Authentic View.

The user of Authentic View is not expected to be knowledgeable about either XML or the schema being used for the document. The document display in Authentic View should make content editing as easy and non-technical as possible. It is, therefore, the task of the person who designs the STYLEVISION Power Stylesheet to produce a user-friendly Authentic View display.

For information about using Authentic View, see the Authentic View documentation in the user manual of the relevant Altova product.

2.5 Databases and STYLEVISION

In STYLEVISION, you can also base a STYLEVISION Power Stylesheet on a database (DB). This means that you can use STYLEVISION as a reporting tool for databases. You can create a design for the report in a STYLEVISION Power Stylesheet, preview the HTML and PDF output in STYLEVISION, and generate HTML and PDF files via the command line.

The broad mechanism by which database reports are designed, previewed, and generated is as follows:

- Connect to the database with STYLEVISION (during the connection process you can specify what data tables in the DB should be filtered out).
- This creates (i) an XML Schema that is displayed in the Schema Window in tree form, and (ii) a STYLEVISION-internal XML file that contains data from the database.
- You can define top-level filters in STYLEVISION to restrict the data imported into the XML File.
- A STYLEVISION Power Stylesheet is created from the schema tree by dragging-and-dropping nodes in the Design Window as described in this documentation.
- The internal XML file created from the database is displayed in the HTML and PDF preview windows according to the design rules specified in the STYLEVISION Power Stylesheet.
- After saving the STYLEVISION Power Stylesheet, you can generate the XML Schema, XML, HTML, and PDF files via the command line.

Note: DB-based STYLEVISION Power Stylesheets cannot be used with Authentic View since Authentic View is used to edit XML files, not DBs.

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2.6 STYLEVISION and HTML / PDF output

In STYLEVISION, you can generate XSLT stylesheets for output to HTML and XSL-FO from your STYLEVISION Power Stylesheet. See figure in Uses of STYLEVISION Power Stylesheets for an overview.

All presentation properties (formatting, layout, hyperlinking, etc) in the STYLEVISION Power Stylesheet are translated into the corresponding HTML and XSL-FO markup. Therefore, Authentic View and HTML outputs, as well as the PDF output, will closely resemble each other. You can see previews in the HTML and PDF windows.

XSLT for HTML output
For HTML output obtained by using a STYLEVISION Power Stylesheet-generated XSLT, the following points should be noted:

- The formatting and layout of the HTML will be identical to the HTML Preview of STYLEVISION and near-identical to the Authentic View of the XML document.
- Data-input devices (text input fields, check boxes, etc) in the HTML do not allow input. These data-input devices are intended for XML data input in Authentic View and, though they are translated unchanged into the graphical HTML equivalents, they cannot be used for data-entry in the HTML document.

XSLT for XSL-FO output
XSL-FO is a markup language used for producing PDF. The XSL-FO file has to be processed with an FO engine to obtain the PDF.

The following points should be noted:

- In general, the translation of STYLEVISION Power Stylesheet formatting and layout properties to the XSL-FO syntax is a straightforward correspondence. However, to render a document to paged media requires some special specifications, such as for left/right pagination, the location and composition of headers and footers, the design of a cover page, etc. In the Enterprise Edition of STYLEVISION, you can design these additional features for your document, and these are included in the XSLT stylesheet for XSL-FO.
- If data-input devices have been used in the STYLEVISION Power Stylesheet, then, where possible, these are rendered as graphics on the PDF page. When a data-entry device cannot easily be simulated as a graphic (e.g. check boxes), a substitute presentation is used.

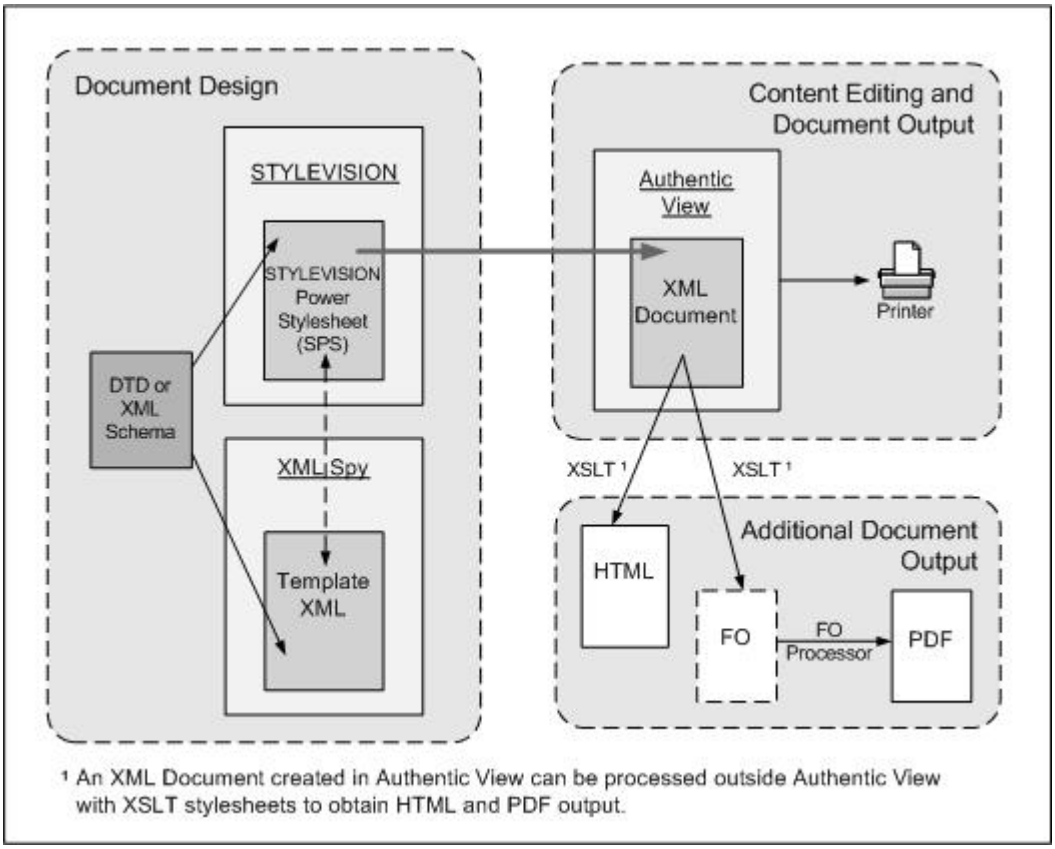
Using the command line to generate output
You can use the command line to call STYLEVISION and generate various output files. For details, see STYLEVISION from the command line.

2.7 STYLEVISION concepts and terminology

The following concepts and terminology are important for an understanding of how STYLEVISION Power Stylesheets and Authentic View work.

- A **STYLEVISION Power Stylesheet** is a **.sps file** created with **STYLEVISION**. It is built around the XSLT programming language
- A STYLEVISION Power Stylesheet is based on a particular **schema** (DTD or XML Schema) or **database**
- A **Working XML File** is assigned to a STYLEVISION Power Stylesheet in STYLEVISION in order to preview the output of an XML document in STYLEVISION. It also resolves ambiguity about the document element if such exists (see Troubleshooting)
- A **Template XML File** is an XML file that provides the starting data of the XML Document that is used as the Authentic View template. It must be conformant with the schema on which the STYLEVISION Power Stylesheet is based. A Template XML file is assigned to a STYLEVISION Power Stylesheet in STYLEVISION
- An XML file can be assigned a STYLEVISION Power Stylesheet at any time in a Authentic View product
- Once a STYLEVISION Power Stylesheet has been assigned to an XML document, the latter can be opened in Authentic View and edited; it is an XML document like any other.

The diagram below illustrates these concepts.



Note:
When a STYLEVISION Power Stylesheet is based on a DB, an XML Schema file and an XML file are created internally from the DB. They hold, respectively, the structure and data of the DB.

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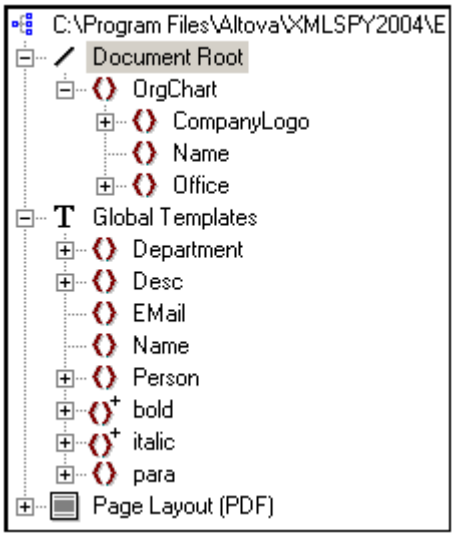
HTML and PDF Preview files based on the STYLEVISION Power Stylesheet and that use the internal XML file as the Working XML File are also generated internally and displayed in the Preview Windows. All these files plus the XSLT stylesheets generated from the STYLEVISION Power Stylesheet can be created via the command line.

2.8 STYLEVISION features

The following is a listing of the major design features supported in STYLEVISION Power Stylesheets. They are divided into the following categories:

- XSLT transformation features
- XPath support
- Data-entry devices
- Formatting features

Document structure
The **Root Template** is the template that defines the structure of the document. It enables you to control the structure of the document by selecting nodes from the schema tree (shown in the Schema Window below under `/ Document Root`) and placing them in the document structure in the Design Window. You can move nodes around in the design document, and thus control the structure of the result document.



A **global template** can be created for each global element type (XML Schema elements defined as global elements and all DTD elements). Using a global template is convenient because it allows you to globally define rules for processing an element type. You do not have to re-create the same rules at each location in the design document where an element type occurs. When an element for which a global template is defined is placed in the Root Template, you can choose between using the global template and using a local template for that occurrence.

The Root Template gives you control over the structure of the result document. Global templates allow you to write rules for elements, the locations and frequency of which in the instance document you cannot know in advance. For example, you cannot know, before a paragraph is written, whether it will contain italics. So you cannot place a rule for processing italic elements in the Root Template, the structure of which corresponds to the output document structure. Global templates also give you efficiency. For example, if a title element is to occur several times in a document, a single global template can be used for all title elements. You can use an appropriate mix of Root Template and global templates in your STYLEVISION Power Stylesheet.

Looping through a nodeset
A common feature of XML documents is the repeating data structure. For example, an office department typically has several employees. The data for each of these employees is stored in a data structure which is repeated for each employee. Similarly, the data for each department in

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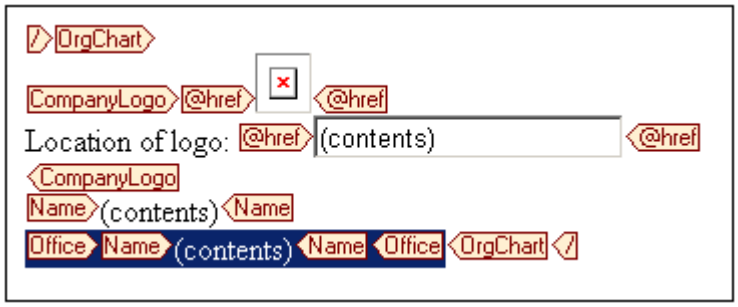
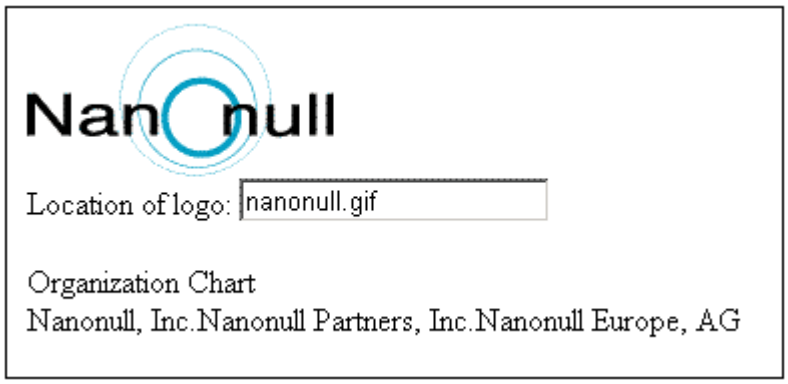
the office is stored in a repeating data structure. In the STYLEVISION Power Stylesheet, the processing for each such data structure is defined in a single template, and the rules of this template are applied to each node in the nodeset in turn.

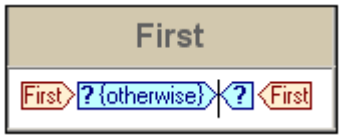


Creating a template for `//Office/Name` causes the names of all three offices to be output, as shown below.



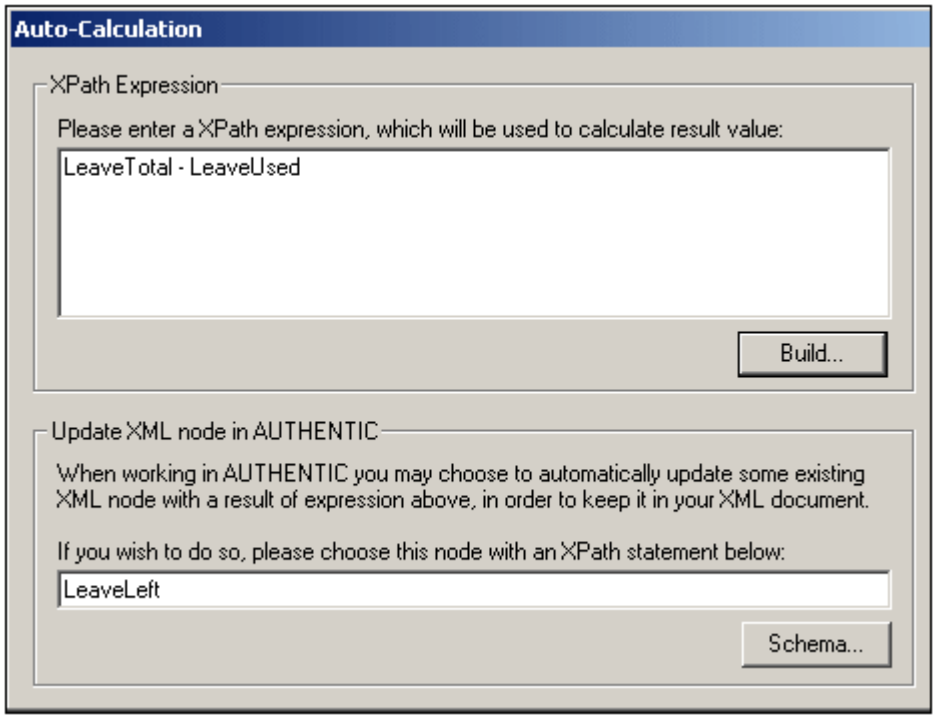
Conditional templates
Conditions can be attached to a template. This allows you to specify alternative processing for different XPath-based conditions. For example, a condition can specify that a template apply only to the first node in a nodeset, or that nodes with numerical values above a certain value be processed differently than those with a value equal to or less than that value.

The screenshot above shows a condition inside the `First` field. The condition checks whether the number of shares (value of the `Shares` element) exceeds the value `0`. If it does, the content of the `First` field is displayed in bold. A second condition within the template (shown below) is an Otherwise template, which causes no output to be displayed. So if the value in the `Shares` field is `0` or does not exist, then the content of the `First` element is not displayed (or, alternatively, could be displayed in roman).



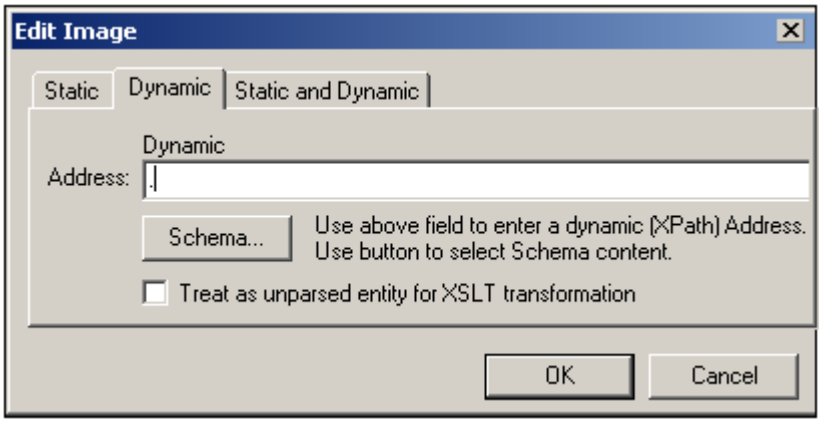
Auto-Calculations
An Auto-Calculation evaluates an XPath expression and displays the result in Authentic View. Optionally, the result can be entered as XML node content. This is useful, for example, for

totalling amounts in a column, or for counting the total number of employees in an office, or for any mathematical operation involving node content in various parts of the document.


Auto-Calculation
XPath Expression
Please enter a XPath expression, which will be used to calculate result value:
LeaveTotal - LeaveUsed
Build...
Update XML node in AUTHENTIC
When working in AUTHENTIC you may choose to automatically update some existing XML node with a result of expression above, in order to keep it in your XML document.
If you wish to do so, please choose this node with an XPath statement below:
LeaveLeft
Schema...

Static and dynamic text
Static or dynamic text can be inserted anywhere in the document. Static text is text that is contained in a template. It is output as invariable text, such as labels and table-column headers, in the result document. Dynamic text, on the other hand, is text that comes from the XML document. It changes with each node in a nodeset and when the XML document is edited.

Static and dynamic images
A static or dynamic image can be inserted anywhere in the document. The location of static images is specified in the STYLEVISION Power Stylesheet, while the location of dynamic images is specified as node content in the XML document. In the STYLEVISION Power Stylesheet, the location of a dynamic image is referenced via the node containing it. Thus, in a repeating data structure, the image referenced can be different for each node in the nodeset, and depends on the image location information contained in that node.



Inserting static-and-dynamic images (where part of the address is static and part is dynamic) is

also possible.

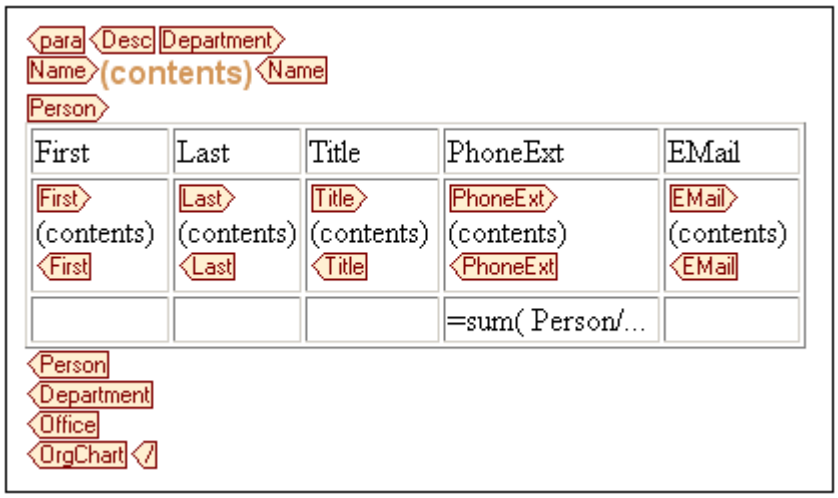
Static and dynamic hyperlinks
A static or dynamic hyperlink can be inserted anywhere in the document. As with static and dynamic images, hyperlink addresses can be contained in either the STYLEVISION Power Stylesheet or in the XML document, or partly in both.

Static bookmarks
A static named bookmark (or anchor) can be inserted anywhere in the document, and can be referenced by a hyperlink.

Static and dynamic tables
A static or dynamic table can be inserted anywhere in the document.

A static table is used to generate a table in the result document in which cell content comes from unrelated nodes in the document. In the static table shown below, nodes from anywhere in the schema can be dropped into any table cell.

A dynamic table (below) generates a table in the result document for a repeating data structure: the child nodes form one dimension of the table while the element occurrences form the other dimension.

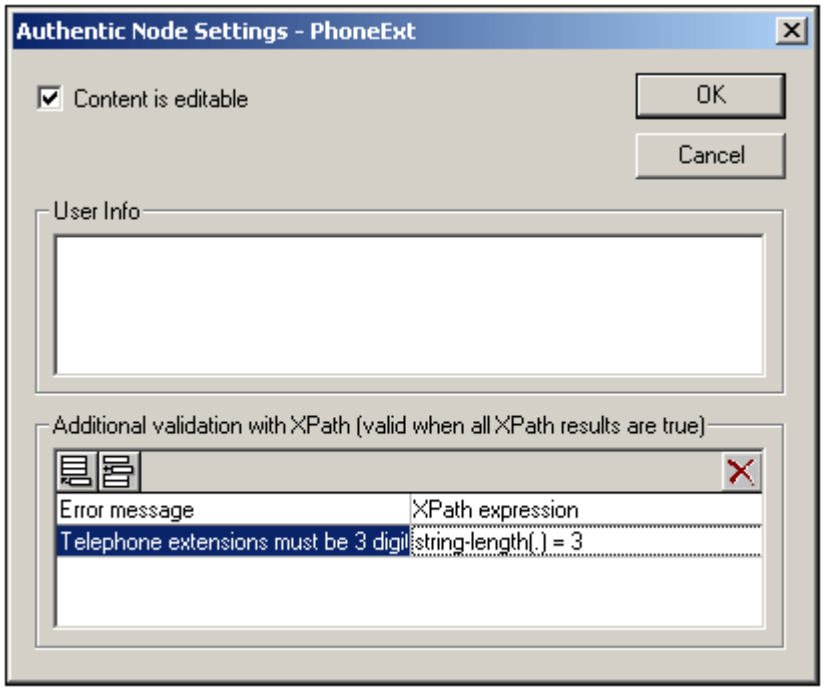


Both static and dynamic tables can be re-structured and re-formatted as required.

Static and dynamic lists
A static or dynamic list can be inserted anywhere in the document. A static list is a list in which the list items are created directly in the STYLEVISION Power Stylesheet. A dynamic list is one in which it is defined that multiple instances of a single element in the XML document are to be created as the list items of a list.

Additional Validation
One or more XPath expressions can be set for each node. The content of the node can be evaluated against this expression and a suitable error message displayed in Authentic View in

the event that the XPath is evaluated as false. In the example below, Additional Validation is set for the node `PhoneExt`. If the value of the `PhoneExt` node is a string of length not equal to three, then a validation error is generated and the message entered in the Error message filed is displayed.



Parameters
Parameters can be declared for the stylesheet. This enables values to be passed to the stylesheet from the command line at processing time. See Parameters for details.

Command line transformations and file-generation
STYLEVISION can be called from the command line to silently execute XSLT transformations and generate output files. See STYLEVISION from the command line for details.

XPath support
The internal XSLT processor supports all XPath 1.0 expressions and the full core function library.

XML input fields
XML input fields (or data-entry devices) are used to enter data into the XML document via Authentic View. These input fields are text boxes, combo boxes, check boxes, radio buttons, and buttons. They are useful for constraining the data that is entered into the XML file via Authentic View. In the HTML and PDF output/s, data-entry devices have presentational value only; they cannot be used to enter data. For a complete list and description of XML input fields, see Data-entry devices.

Layout and display formatting
The XSLT processor creates an area tree which follows a model to which CSS and XSL-FO properties can be applied. In STYLEVISION, these formatting properties are available as a single set of properties for both outputs in the Text Style and Block Style windows, and they are converted to the appropriate CSS and XSL-FO properties in the HTML output and PDF output, respectively. See Formatting for usage.

CSS properties are applied in the Authentic View and XSLT-for-HTML outputs. STYLEVISION

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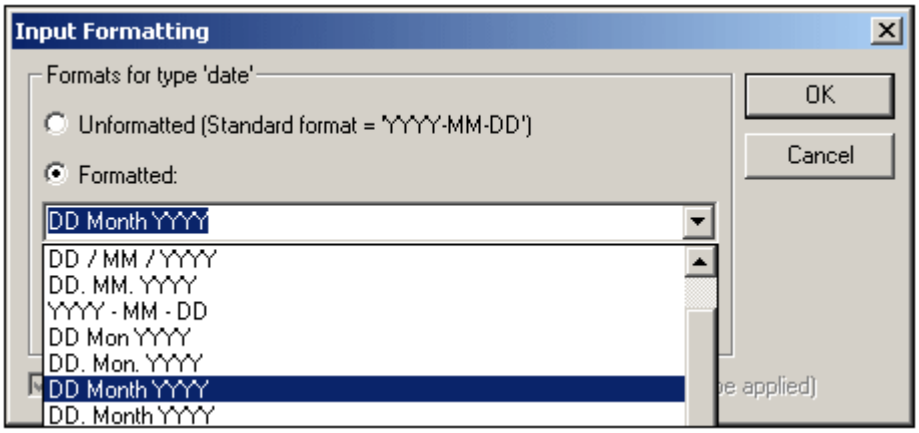
supports the majority of CSS properties. XSL-FO properties are generated in the XSLT-for-XSL-FO. XSL-FO properties that are supported by the Apache Project's current FOP processor are supported in STYLEVISION 2004.

Data (or input) formatting
For nodes with certain datatypes, such as numbers and the XML Schema date datatype, the node content can be formatted as required. For example, an element that contains currency amounts can be formatted so that it has two decimal places, commas after the million and thousand places, and a dollar sign before the amount (`$450,000.00`).



Such formatting, known as **Input Formatting**, appears in the Authentic View output and, for a subset of the formattable datatypes, optionally in the HTML and PDF output.

Chapter 3

Getting Started

3 Getting Started

This section discusses issues related to starting work with STYLEVISION. It covers the following:

- A discussion about installing STYLEVISION and setting up related components.
- A high-level description of the STYLEVISION interface.
- A discussion of the document design process.

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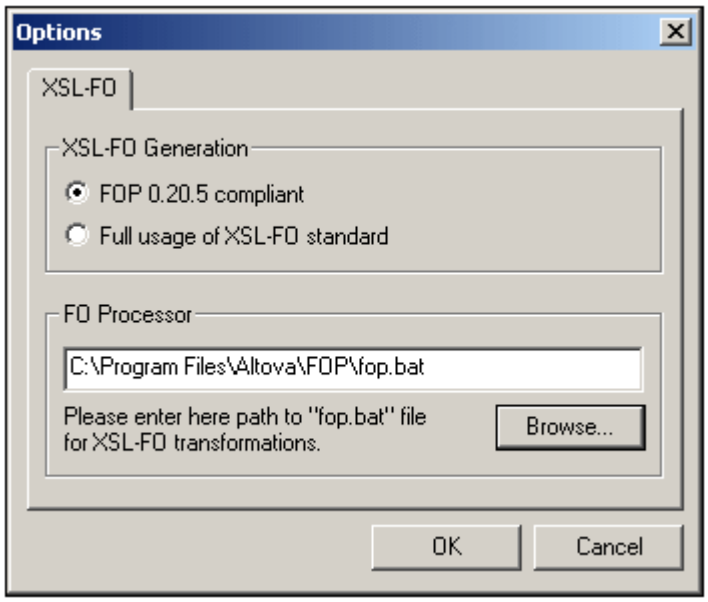
3.1 Setting up STYLEVISION

In order to preview HTML output and PDF output in STYLEVISION, you need an XSLT processor and FO processor.

XSLT processor
STYLEVISION has an internal XSLT processor. No additional installation or setting is required. When you click the HTML Preview tab in the Main Window (see STYLEVISION interface), the XSLT processor carries out the XSLT transformation (using an XSLT generated on-the-fly from the STYLEVISION Power Stylesheet) and displays an HTML preview of the Working XML File. When you click the PDF Preview tab, the XSLT processor uses an XSLT-for-FO, which is generated on-the-fly by the STYLEVISION Power Stylesheet, to transform the Working XML File into an XSL-FO document. The XSL-FO is then transformed by an FO Processor to obtain the PDF.

FO processor
In order to obtain the PDF preview, you need to install an FO processor on your system. An FO processor processes the XSL-FO generated by the XSLT, and produces the PDF. The Apache Project's FOP processor and the XEP processor from RenderX are available as convenient installer packages at the Altova website. If an FO processor has not been installed with your version of STYLEVISION, then you should install one in order to be able to preview the PDF output.

After installing an FO processor, you need to make the required settings for it in STYLEVISION. To do this, in STYLEVISION, click **Tools | XSL-FO Options...**. This opens the following dialog:



Location of FO processor executable
Set the path to the executable of the FO processor.

Compliance level for XSL-FO to PDF conversion
The FO file that is generated by the XSLT transformation of the XML will typically be in compliance with the complete XSL-FO specification. This means that it makes use of the full range of objects, properties, and values available in the complete compliance level of the XSL-FO specification. Currently available FO processors, however, may not implement all these objects, properties, and values. Such a processor may generate an error when required to process an unimplemented feature, and cause the conversion to stop.

If you set the compliance level to basic (the currently supported FOP compliance level), then only properties and values in the basic level of the specification are processed, and others are filtered out. This allows the processing to be completed successfully even though some properties/values are not processed.

If you set the compliance level to complete (full usage), then the processor may report a fatal error if it encounters a property or value for which no processing action has been implemented.

FOP from the Apache XML Project
FOP is a popular FO processor that is available free of charge. You can download and install FOP from the Altova Website. This package downloads, installs, and configures FOP for use within your product interface. Alternatively, you could download FOP from the Apache Website.

Note that FOP requires a Java Runtime Environment, downloadable free of charge from Sun's Java Site.

After you have installed FOP, make sure that STYLEVISION knows where to find the FOP executable. To do this, click **Tools | XSL-FO Options...** in STYLEVISION, and enter the path to the `fop.bat` file (see figure above).

Note: Since conformance levels between any two FO processors can differ widely, and since the XSL-FO specification may be interpreted differently from processor to processor, the PDF produced by different processors from a single FO file could be different.

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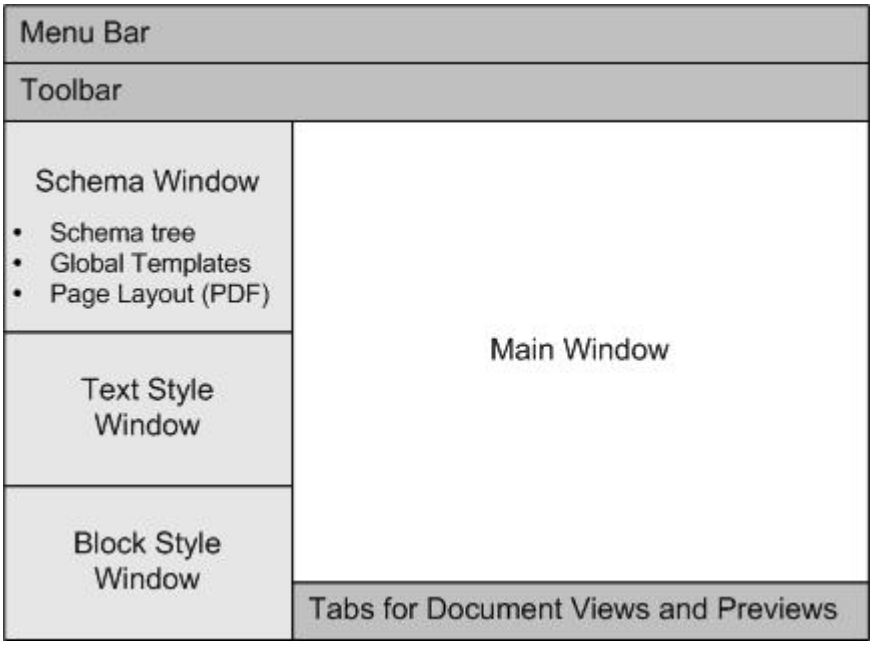
3.2 STYLEVISION interface

The graphical user interface of STYLEVISION is made up of two broad parts:

- The tabbed Main Window, which displays the design of the document, code of the XSLT stylesheet/s, and the output preview/s.
- The Schema Window and styling windows, in which content is selected in terms of schema elements and attributes (Schema Window), and in which items selected in the Design Document can be formatted (Text Style Window and Block Style Window).

The functions of individual parts of the interface are described below.



Title Bar
The Title Bar contains the name of the STYLEVISION Power Stylesheet file and the Working XML File.

Menu Bar
The Menu Bar contains the STYLEVISION menus.

Toolbar
The Toolbar contains icons for common commands. Some icons will be familiar from other Windows applications. Others are for specialized STYLEVISION actions. Note that the bottom row of the toolbar contains icons for the creation of static SPS tables and the editing of both static and dynamic SPS tables; these icons correspond to commands in the Table menu.

Main Window
The Main Window has six tabs: Design; Authentic Preview; XSLT Stylesheet; HTML Preview; XSL-FO; and PDF Preview. The STYLEVISION Power Stylesheet is designed in the Design Window (or tab). In the Design Window, dynamic components (content that comes from the XML document) are displayed in terms of schema elements and attributes which are dragged from the schema tree; static components (such as images, non-XML text, etc) are entered directly into the Design Window. All components of the Design Document are displayed with the formatting and layout properties applied.

The **Authentic Preview** enables you to preview the Authentic View of the Working XML File.

Dynamic changes that result from editing XML content are displayed in the Authentic Preview. Changes you make to XML content in the Authentic Preview are saved to the Working XML File. No Authentic Preview of DB files is available (since DB files cannot be edited in Authentic View).

The **XSLT Stylesheet** view and **XSL-FO** view show the text of the XSLT for HTML and XSLT for PDF, respectively. You are not allowed to edit the code displayed in the XSLT Stylesheet and XSL-FO views.

Clicking the **HTML** or **PDF Preview** tab starts the respective transformation process, and displays a preview of the output. In the HTML preview, data-entry devices for XML data are displayed; however, the entry of XML data in the HTML Preview is not allowed.

Schema Window
The Schema Window displays the following:

- A **tree representation of the schema** (DTD or XML Schema) in terms of its elements and attributes. Elements and attributes are dragged from the Schema Window and placed at the required location in the Design Document.
- A list of all elements and attributes for which **global templates** are possible. When you select an element or attribute from this list, a global template is created. The formatting that you specify in a global template is applied to all occurrences of that element in the document.
- A list of **page layout components for PDF** output (such as a cover page design and headers and footers). These components are specific to paged media and need to be defined additionally.

Text Style Window
The Text Style Window has tabs, each with different groups of text formatting properties (such as font-weight and font-style). When text or a node containing text is selected in the Design Document, text formatting properties are applied **to the text** via the properties in the Text Style Window. Some text style properties (such as font-weight) are also available as icons in the toolbar.

Block Style Window
The Block Style Window has tabs, each with different groups of block formatting properties (such as spacing before and after a block). When a **block component** is selected in the Design Document, block formatting properties are applied **to the block** via the properties in the Block Style Window. If the selected Design Document component is not a block, the Block Style Window is disabled (grayed out).

Note: Only one STYLEVISION Power Stylesheet can be open at a time in STYLEVISION. The STYLEVISION title bar and the STYLEVISION Power Stylesheet title bar are one and the same. Clicking the Close button in the title bar therefore closes both the STYLEVISION Power Stylesheet as well as STYLEVISION.

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3.3 Document design process

The document you create with STYLEVISION is a STYLEVISION Power Stylesheet. The STYLEVISION Power Stylesheet is created in the Design Document tab of the Main Window, and it defines how an XML document based on a given schema is to be processed and output. The process of creating a STYLEVISION Power Stylesheet with STYLEVISION can be divided into the following general parts:

Selection of dynamic content and its placement in document

- **Schema:** A schema (DTD or XML Schema) is used as the starting point. The schema, which provides the structure (in terms of elements and attributes) according to which an XML document can be built, is loaded into STYLEVISION. It is displayed as a **tree** in the Schema Window. Your STYLEVISION Power Stylesheet is based on the schema you load into STYLEVISION. Be sure to finalize your schema before starting to build the STYLEVISION Power Stylesheet. If you change your schema subsequently, you might need to re-create your STYLEVISION Power Stylesheet from scratch.
- **Content to be selected:** XML content is selected by dragging an element or attribute from the schema tree.
- **Location in output document:** The dragged element/attribute is placed in the **design document**. Where it is dropped determines the **location** of that particular element/attribute in the design document. Since the actual content (i.e. data) comes from the XML document and could vary depending on the XML content of the element/attribute, this kind of content is known as dynamic content and its containing component is known as a dynamic component.

STYLEVISION Power Stylesheet Components

STYLEVISION Power Stylesheet components can be categorized in terms of:

- Type (static or dynamic), and
- Form (e.g. contents, data-entry device, table, image, etc).

Type of component
Static components are those with static content, that is, content entered in the STYLEVISION Power Stylesheet; static content does not come from the XML document. The most common examples of static content are text and images. Static text is text that is entered directly in the STYLEVISION Power Stylesheet. Static images are those that have their URLs specified in the STYLEVISION Power Stylesheet. Dynamic components, on the other hand, are those components which have content that comes from the XML document.

Form of component
This refers to the form the component takes, which could be text, or a table, image, hyperlink, etc. Two forms that require explanation are the `(contents)` placeholder and data-entry devices. The `(contents)` placeholder is used with dynamic components, specifically an element or attribute, and serves to output the contents of the node. Data-entry devices are described in the section Data-entry devices.

Inserting static components

- **Static components:** Additional components that are external to the XML source can be added to the design document. These components could be text, images, table structures, hyperlinks, etc. They are considered static because they are non-XML. Since they are sourced in the stylesheet, they cannot be changed in the XML document; they are inserted in the output document from the stylesheet at the time of transformation.

Processing of dynamic content

- **Basic processing:** When an element/attribute is dropped into the design document, you must decide in what form its content is to be displayed. Some possibilities are as follows. If the content model of the selected node is text, you might want to create the content as a paragraph. If the content model of the selected node is other elements, you might want to create the selected element as a table, with the child elements forming the columns of the table. If the selected node is an attribute, you might want to create the attribute as an image, with the value of the attribute being the location of the image. Or yet again, you may wish to create the selected node as a data-entry device to accept XML input in Authentic View.
- **Advanced processing:** You can build conditional templates to process a node in alternative ways depending on the value of any node in the XML document. You can also use XPath expressions (i) to generate XML values from other XML content, and (ii) to perform additional validation of nodes.

Formatting of content

- Precise formatting can be applied to any static or dynamic component in the design document. Formatting properties include text and block styling, as well as those for complex table layouts.

The above provided a broad outline of how a STYLEVISION Power Stylesheet is designed. The more detailed aspects are explained in subsequent sections.

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Chapter 4

Tutorial

4 Tutorial

The aim of this tutorial is to create a STYLEVISION Power Stylesheet for a company with offices in the US and EU. After the STYLEVISION Power Stylesheet has been created, it can be used to edit an XML document in Authentic View. To do this, the XML document must be linked to the STYLEVISION Power Stylesheet. The following general points apply to this tutorial.

Previewing the outputs and checking for differences among them
While you create the STYLEVISION Power Stylesheet in STYLEVISION, you can directly preview the Authentic View, HTML output and PDF output in STYLEVISION. To do this you must assign a Working XML File to the STYLEVISION Power Stylesheet. There are small differences in the way different components are rendered in the Authentic View and HTML outputs on the one hand and the PDF output on the other. For the most part the differences are subtle, and do not need your special attention. One component that needs to be checked is the table. Since table and column widths for tables in PDF must be explicitly specified, it is important to check the PDF Preview when you create or modify a table. Note also that the PDF Previews described in this tutorial have been generated using FOP as the FO processor. If you use another processor, the PDF output may be rendered differently than shown in this tutorial.

You should also test the Authentic View of the Working XML File by editing the file in Authentic Preview. The Authentic Preview is different from the HTML Preview in that the Working XML File can be edited in Authentic Preview but not in HTML Preview. As a result, dynamic functionality, such as Auto-Calculations and Conditional Template processing can be tested in Authentic Preview but not in HTML Preview.

Remember that the previews you see in STYLEVISION are of the Working XML File you have assigned to your STYLEVISION Power Stylesheet. If you modify and re-save your Working XML File outside STYLEVISION subsequent to opening a STYLEVISION Power Stylesheet that uses the Working XML File, then you must close and reopen your STYLEVISION Power Stylesheet in order to see the changes in the revised XML document. Note that you can also save changes to the Working XML File from Authentic Preview (see Save Authentic XML Data).

Text View of Working XML File
Occasionally, you might want to see the text of your Working XML File to check whether changes made in Authentic View have been applied to the XML. You can see the text by viewing the Working XML File in the Text View of your XML editor, or by opening the file in a text editor.

Tutorial files
The following files are used in this tutorial. They are in the `Examples` folder of your application:

- STYLEVISION Power Stylesheet: `NanonullOrg.sps`
- XML Schemas: `NanonullOrg.xsd` and the imported schema `address.xsd`.
- Working XML File: `NanonullOrg.xml`. Assign this file to the STYLEVISION Power Stylesheet as the Working XML File.

You will create your STYLEVISION Power Stylesheet from scratch. When you have completed it, it should be similar to the finished STYLEVISION Power Stylesheet `NanonullOrg.sps`. Before you start work on the tutorial, rename the supplied `NanonullOrg.sps` to something else, such as `NanonullOrg_original.sps`. It is also a good idea to make a copy of the XML file `NanonullOrg.xml` before you start editing it.

STYLEVISION Power Stylesheets based on databases
In the tutorial, you will create a STYLEVISION Power Stylesheet based on an XML Schema. Note that, with STYLEVISION 2004, you can also create a STYLEVISION Power Stylesheet based on a database. For information about how to work with databases, see Databases in STYLEVISION in the How to Use section.

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Note: STYLEVISION supports **unlimited undo**. So you can go back as many steps as you want even after saving the file.

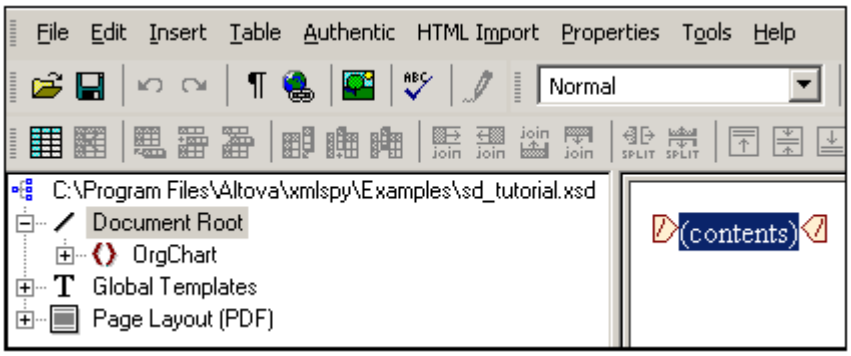
4.1 Setting up the STYLEVISION Power Stylesheet

Setting up a STYLEVISION Power Stylesheet entails the following:

- Opening a schema in STYLEVISION
- Assigning a Working XML File
- Creating a rudimentary document outline
- Saving the STYLEVISION Power Stylesheet with a name

Starting STYLEVISION and opening a schema

1. Start STYLEVISION by double clicking the STYLEVISION icon on your Desktop or by clicking **Start | Programs | STYLEVISION 2004**. STYLEVISION starts. The Schema Window and the Design Document window are empty.
2. Select the menu option **File | New** and open the supplied `NanonullOrg.xsd` schema file (in the `Examples` folder of your STYLEVISION 2004 installation folder).



This creates a schema tree with the element `OrgChart` as the root element in the Schema Window, as well as entries for Global Templates and Page Layout features immediately below the schema tree. A `(contents)` placeholder for the root element is also created in the Design Document window.

Note: We use the word schema (not capitalized) to denote the superset that contains DTDs and XML Schemas (capitalized). While this tutorial uses an XML Schema (`NanonullOrg.xsd`), note that you can also use DTDs in STYLEVISION.

Assigning the Working XML File

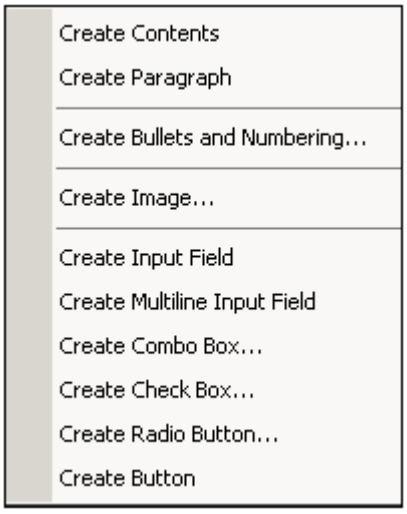
The Working XML File is used to preview how an XML file based on the selected schema will be processed by your STYLEVISION Power Stylesheet. STYLEVISION provides an Authentic Preview and previews of the HTML and PDF outputs of the Working XML File so you can quickly see how your STYLEVISION Power Stylesheet will process the XML.

To assign a Working XML File, select **File | Assign Working XML File...**. Then browse and select `NanonullOrg.xml`, which is in the `Examples` folder. Before assigning the Working XML File, you should save a copy of the original `NanonullOrg.xml` with some other name.

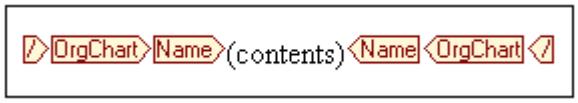
The Working XML File, including the path to it, now appears in the title bar.

Creating the document outline in the Design view

1. In the Schema Window, expand the `OrgChart` element.
2. Select the `/OrgChart/Name` element and drag it into the Design window. Position it just after the `(contents)` placeholder. A blinking cursor appears after the `(contents)` placeholder, and the dragged element becomes an arrow. When you release the mouse button, a popup menu appears:



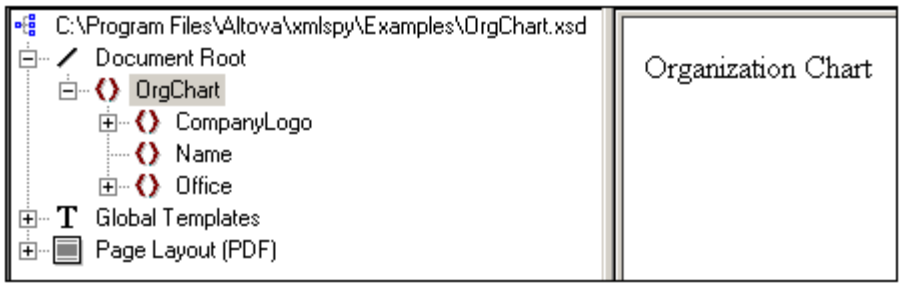
3. Click the **Create Contents** option in the popup. The Design Document now looks like this:



The `Name` element with a `(contents)` placeholder is inserted. The `(contents)` placeholder represents the content of the `Name` element. When the XML file is processed with this STYLEVISION Power Stylesheet (for Authentic View, HTML, and PDF output), the XML content of the `Name` element will be displayed.

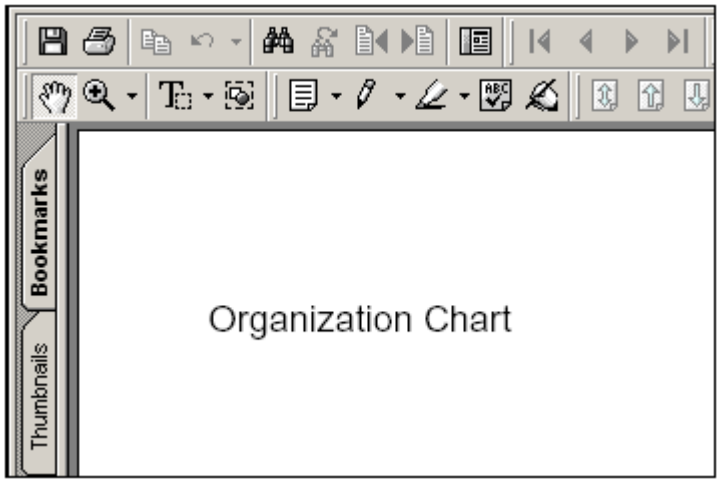
Previewing the XML file
To preview the Authentic View and HTML outputs, we will use the Authentic Preview of STYLEVISION.

- Authentic Preview (shown below) provides an accurate preview of both the Authentic View and HTML outputs. The HTML Preview looks the same.



If you look in the Text View of your Working XML File (in an XML editor or text editor), you will see that the contents of the `/OrgChart/Name` element is "Organization Chart", which is what appears in the Authentic Preview. Also click the HTML Preview tab to see a browser preview of the HTML.

- PDF Preview provides a preview of the PDF output. For instructions about setting up STYLEVISION for PDF preview, see the section, Setting up STYLEVISION



The PDF page layout you see is a default layout. How to customize the page layout is described in PDF processing and page layout in the How To section of this documentation.

Viewing the XSLT stylesheets

To view the XSLT stylesheet (for HTML output), click the XSLT Stylesheet tab at the bottom of the Main Window. It will look something like this (syntax coloring has been added and indentation changed in the code below so as to aid readability):

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:n1="http://www.xmlspy.com/schemas/orgchart"
  xmlns:ipo="http://www.altova.com/IPO"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <xsl:template match="/">
    <html>
      <head />
      <body>
        <xsl:for-each select="n1:OrgChart">
          <xsl:for-each select="n1:Name">
            <xsl:apply-templates />
          </xsl:for-each>
        </xsl:for-each>
      </body>
    </html>
  </xsl:template>
</xsl:stylesheet>
```

To view the stylesheet for XSL-FO output, click the XSL-FO tab at the bottom of the Main Window. This is what it will look like (syntax coloring added and indentation changed):

```
<?xml version="1.0" encoding="UTF-8"?>
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
  xmlns:fo="http://www.w3.org/1999/XSL/Format"
  xmlns:n1="http://www.xmlspy.com/schemas/orgchart"
  xmlns:ipo="http://www.altova.com/IPO"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <xsl:variable name="fo:layout-master-set">
    <fo:layout-master-set>
      <fo:simple-page-master master-name="default-page"
        page-height="11in" page-width="8.5in"
        margin-left="0.6in" margin-right="0.6in">
        <fo:region-body margin-top="0.79in" margin-bottom="0.79in" />
      </fo:simple-page-master>
    </fo:layout-master-set>
  </xsl:variable>
  <xsl:template match="/">
```

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```
    <fo:root>
      <xsl:copy-of select="$fo:layout-master-set" />
      <fo:page-sequence master-reference="default-page"
        initial-page-number="1" format="1">
        <fo:flow flow-name="xsl-region-body">
          <fo:block>
            <xsl:for-each select="n1:OrgChart">
              <xsl:for-each select="n1:Name">
                <xsl:apply-templates />
              </xsl:for-each>
            </xsl:for-each>
          </fo:block>
        </fo:flow>
      </fo:page-sequence>
    </fo:root>
  </xsl:template>
</xsl:stylesheet>
```

You are not allowed to edit the XSLT code. If you wish to modify these XSLT files, you can save them as a generated XSLT or XSL-FO file, and then edit the generated files in XMLSPY 2004 or other editor. If you do this, however, note that the modified file will be different from the STYLEVISION Power Stylesheet, which you can modify only in the Design view of STYLEVISION.

The generated XSLT stylesheets can be saved by selecting the menu command **File | Save Generated Files | Save Generated XSLT file...**.

Saving the STYLEVISION Power Stylesheet

The STYLEVISION Power Stylesheet is saved as an SPS (`.sps`) file; it controls the display and processing of the Authentic View of an XML document. The SPS file also contains information about related files, such as the underlying schema, Working XML File, and Template XML File. (See STYLEVISION concepts and terminology for a description of these terms.)

To save the STYLEVISION Power Stylesheet, click **File | Save Design**, and enter `NanonullOrg.sps` as the name of the file. (Be sure to save a copy of the original (supplied) `NanonullOrg.sps` file under another name.) The name you enter appears in the title bar.

4.2 Processing attribute values for output

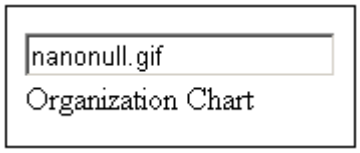
The Design Document defines how the XML document is to be processed. XML content is included as follows. First, the required XML content (element or attribute) is dragged from the schema tree. It is dropped into the Design Document as one of several types of STYLEVISION Power Stylesheet components (such as contents, data-entry device, table, etc). Then, further XSLT/XPath processing can be specified for it. Finally the required formatting is applied.

In this section you will learn how to include attribute values in your output.

Including an attribute as a data-entry device
In the schema tree, you will see that the element `CompanyLogo` has an `href` attribute, the value of which gives the location of the logo image. Now let us say we want the user of Authentic View to specify what image should be used as the logo. We can create the `href` attribute as an input field, and the user can enter the location of the image here. This is how:

1. In the Design window, place the cursor between the start tags of `OrgChart` and `Name`. Press Enter to put the `Name` element on the next line.
2. Drag the `href` attribute from the Schema Window into the Design Document. Drop it just after the `OrgChart` start tag.
3. In the pop-up menu that appears, select "Create Input Field". Your Design Document will now look like this:

The Authentic and HTML Previews will look like this (the data comes from the Working XML File and is the value of the `href` attribute):



Note that the `href` attribute has been created as an input field, while the `Name` element was created as `(contents)`. The Authentic View user will be able to edit both types of display. The input field, however, indicates more clearly to the user that data in this field can be modified.

Adding non-XML XSLT text
In order to indicate what data is contained in the input field, text can be added before the input field. This text is part of the STYLEVISION Power Stylesheet; it does not come from the XML document.

To add text to the XSLT document, type it into the Design Document at the required location. In your STYLEVISION Power Stylesheet, do the following:

1. Place the cursor before the start tag of the `CompanyLogo` element and press Enter. This adds a line break.
2. Type "Location of logo: " before the opening tag of the `href` attribute. The Design Document now looks like this:

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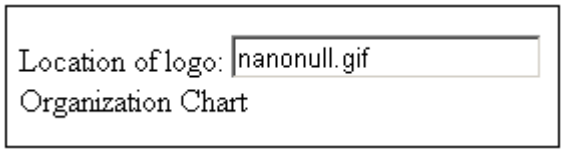
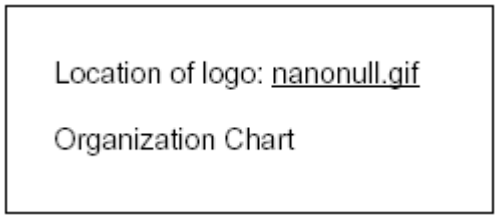
The Authentic and HTML Previews will look like this:



A note on data-entry devices
Data-entry devices are used by the **Authentic View user** to enter **XML data into the XML document**. In an HTML or PDF file that has been created with an XSLT generated from an STYLEVISION Power Stylesheet, a data-entry device cannot be used for data-entry purposes. Data-entry devices in HTML or PDF output **only display** the relevant XML data. No input is accepted in these formats. The data-entry device is intended for input of XML data in **Authentic View**.

Shown below is the PDF preview of your document:



Notice that the input field is rendered as underlined text, and that the content of the input field is the content of the component—in this case the value of the `href` attribute.

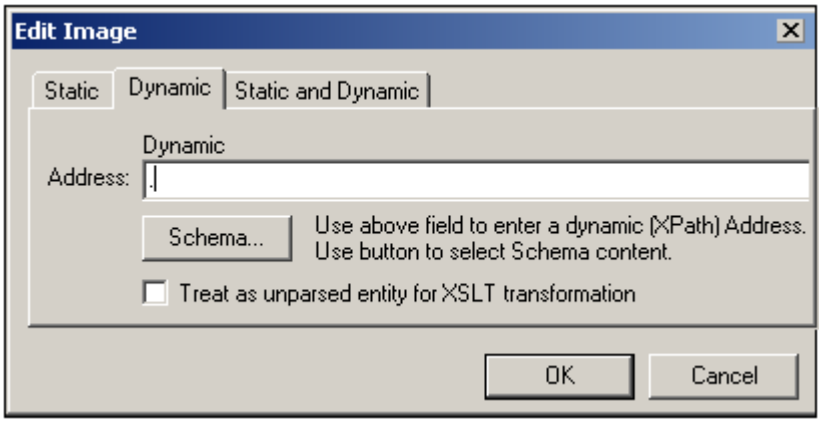
4.3 Including an image

An image can be included in the output of the XML document by including a link to it in the STYLEVISION Power Stylesheet. If the link is explicitly specified in the STYLEVISION Power Stylesheet, the included image is referred to as a static image—because its address does not, and cannot, be changed in the XML document. If, on the other hand, the STYLEVISION Power Stylesheet specifies, instead of the image address, a location in the XML document where the address is to be found, then the image is dynamic; it changes when the corresponding XML content changes.

Inserting a dynamic image

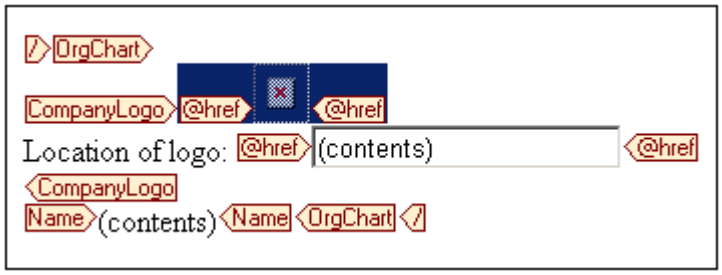
In the previous section, we created an input field for the value of the `href` attribute. This value provides the address of the logo image, and it can be specified by the Authentic View user. Now we will create a display for the image that is specified in the `href` attribute value. Do the following:

1. Drag the `href` attribute from the schema tree, and drop it immediately after the start tag of the `CompanyLogo` element.
2. In the pop-up menu that appears, select Create Image.
3. In the Insert Image dialog (shown below), switch to the Dynamic tab.



4. Check that the Address field contains a period. This is the XPath expression for the current node, which is the `href` attribute (this is the node that was dragged from the schema tree). If there is no period, then type in one.
5. Click OK.
6. Save your changes.

The Design Document will now look like this:



Notice that the `href` attribute appears twice in the STYLEVISION Power Stylesheet: first as an image, then as an input field. This way the user can specify in the input field what image is to be used; the specified image will be displayed immediately at the point where the image has been inserted.

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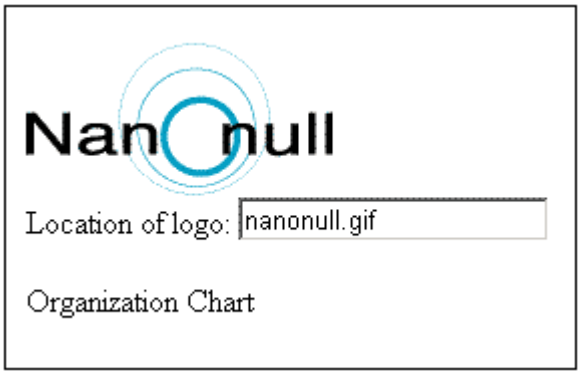
The Authentic and HTML Previews will look like this:



Now, in Authentic Preview, change the value of the `href` attribute and see the dynamic effect on the logo display. Do it this way:

1. In Authentic Preview, place your cursor in the "Location of logo" input field.
2. Replace `nanonull.gif` with `altova.gif` (or any other image in any folder); use a relative path to specify the logo's location. Your Authentic Preview will look like this.

3. Now change the logo back to `nanonull.gif`.

Note: You cannot change XML values in the HTML Preview of STYLEVISION since this is **an output** of the XML document. Authentic View, on the other hand, is **a view** of the XML document.

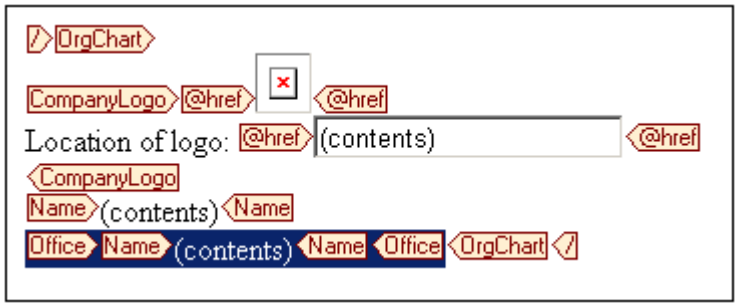
4.4 Processing element content for output

The processing of element content is defined in the Design Document in the same way as the processing of attribute values is: drag the element from the schema tree, drop it into the Design Document as a STYLEVISION Power Stylesheet component, specify further XSLT/XPath processing, and apply the required formatting.

In this section you will add element content to the Design Document. The objective is to create the contents of the `//Office/Name` element on one line, and the contents of the `//Desc/para` elements below it. This is how you will do it.

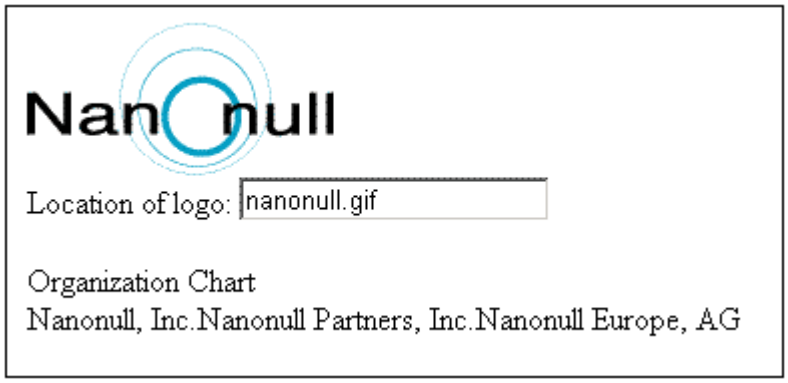
Inserting the `//Office/Name` element

1. Place the cursor before the end tag of the `OrgChart` element and press Enter to insert a line break.
2. Expand the `Office` element in the schema tree.
3. Drag the `//Office/Name` element to the location before the `OrgChart` end tag, and create the element as contents. Your Design Document will look like this.



Notice that tags are created for all levels of the hierarchy between the `//Office/Name` element and the containing `OrgChart` element.

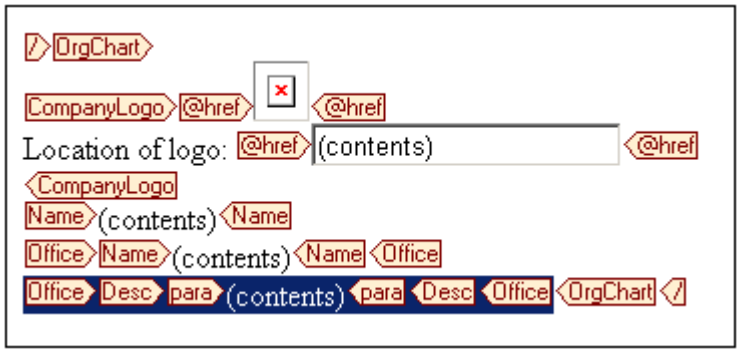
The Authentic and HTML Previews will look like this:



The Working XML File has three `//Office/Name` elements. Notice that the contents of all three are output (without any whitespace between elements).

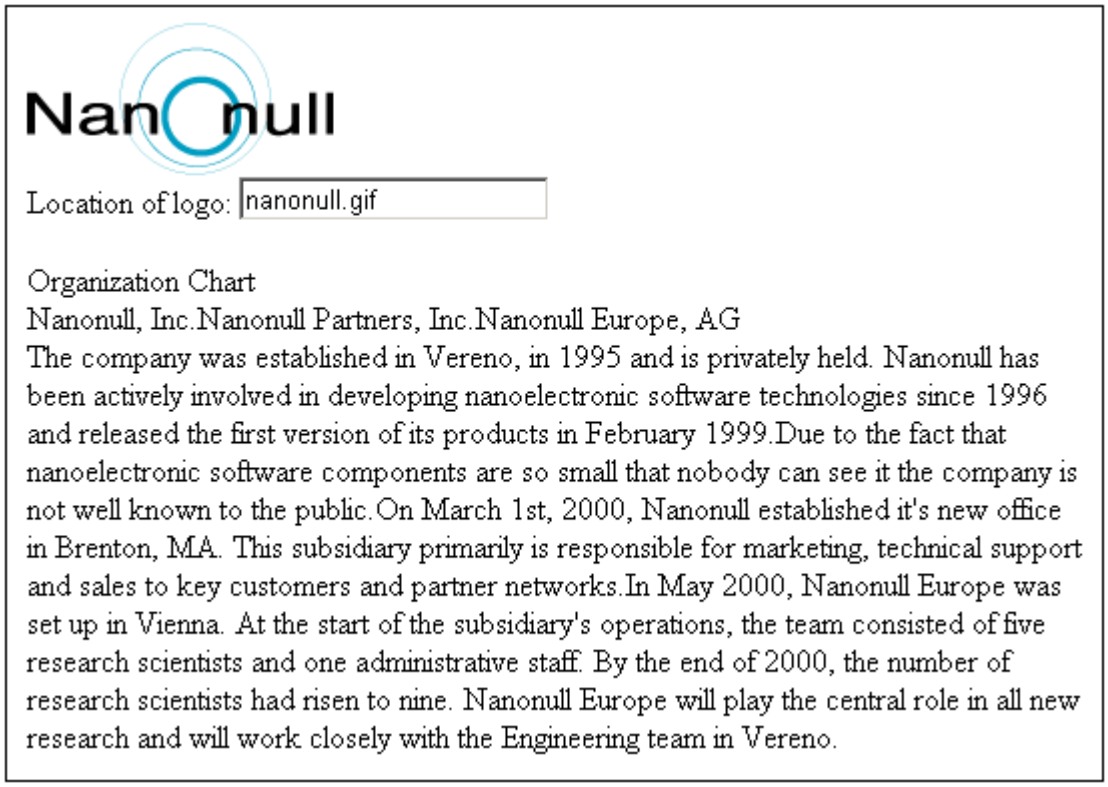
Create the `//Office/Desc/para` element

1. Put a line break before the `OrgChart` end tag.
2. Drag the `//Office/Desc/para` element to the location before the `OrgChart` end tag, and create the element as contents. Your Design Document will look like this.



Notice that tags for all ancestors of `para` are created up to but excluding the containing ancestor (which is `OrgChart`).

Now look at the Authentic or HTML Preview.

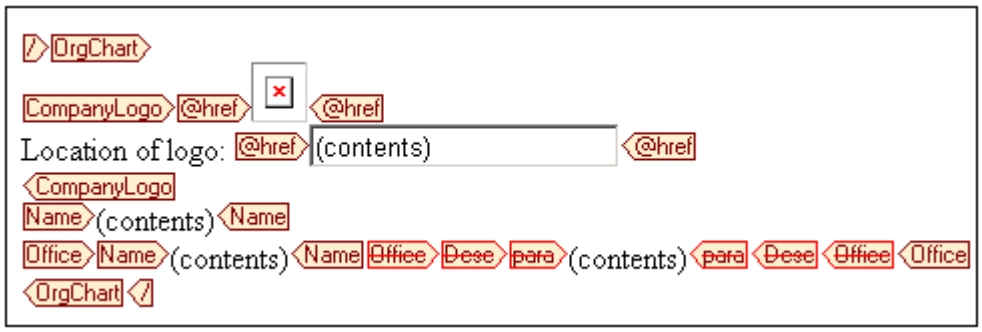

Nanonull
Location of logo:
nanonull.gif
Organization Chart
Nanonull, Inc.Nanonull Partners, Inc.Nanonull Europe, AG
The company was established in Vereno, in 1995 and is privately held. Nanonull has been actively involved in developing nanoelectronic software technologies since 1996 and released the first version of its products in February 1999.Due to the fact that nanoelectronic software components are so small that nobody can see it the company is not well known to the public.On March 1st, 2000, Nanonull established it's new office in Brenton, MA. This subsidiary primarily is responsible for marketing, technical support and sales to key customers and partner networks.In May 2000, Nanonull Europe was set up in Vienna. At the start of the subsidiary's operations, the team consisted of five research scientists and one administrative staff. By the end of 2000, the number of research scientists had risen to nine. Nanonull Europe will play the central role in all new research and will work closely with the Engineering team in Vereno.

All three `//Office/Name` elements are displayed before all the `//Office/Desc/para` elements, which are run together. This is not the desired result. What we want is the content of the first `//Office/Name` element followed by the content of the `Desc/para` elements for that office, and then the content of the second `//Office/Name` element followed by the contents of the `Desc/para` elements for that office; and so on.

If you look at your Design Document, you will see that all the `//Office/Name` elements are processed first, and then all the `//Office/Desc/para` elements. In order to process the `Name` child element of an `Office` element followed immediately by the `Desc/para` elements of that `Office` element, you need to change the location of the `//Office/Desc/para` element so that it is included in a single `Office` element loop and follows the `Name` element directly.

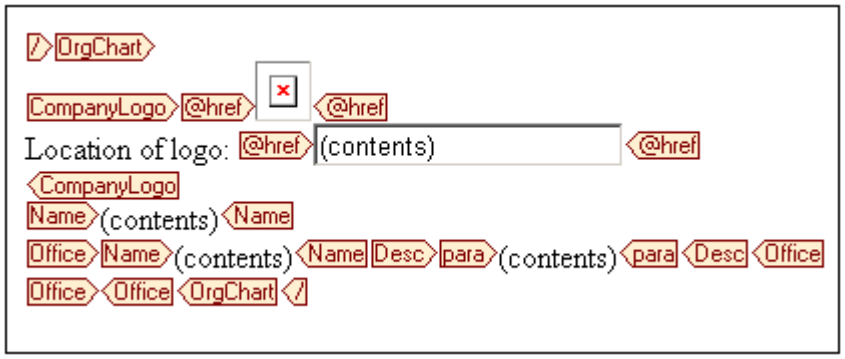
Changing the location of the `//Office/Desc/para` element

1. Select the `//Office/Desc/para` element by clicking the start tag of its `Office` element.
2. Drag the selected element and drop it before the end tag of the `Office` element on the line above. An error message pops up saying that a template selects a node that does not exist.


/ OrgChart
CompanyLogo @href @href
Location of logo: @href (contents) @href
CompanyLogo
Name (contents) Name
Office Name (contents) Name Office Desc para (contents) para Desc Office Office
OrgChart /

Notice that the tags of the non-existent element have a red strikethrough. The XPath `Office/Desc/para` within the containing `Office` element is wrong because the XPath in context then is: `//Office/Office/Desc/para`; that's one `Office` element too many. The correct XPath in the context of the `Office` element is `Desc/para`, not `Office/Desc/para`.

3. In the error dialog, click OK, then press Ctrl + Z to undo the move.
4. Select the `Desc/para` element by clicking the start `Desc` tag.
5. Drag the `Desc/para` element and drop it before the end tag of the `Office` element on the line above. Your Design Window will now look like this.


/ OrgChart
CompanyLogo @href @href
Location of logo: @href (contents) @href
CompanyLogo
Name (contents) Name
Office Name (contents) Name Desc para (contents) para Desc Office
Office Office OrgChart /

6. Delete the `Office` start and end tags on the last line, and put a line break after the `//Office/Name` element and after the `//Office/Desc` element. Your Design Window should now look like this.

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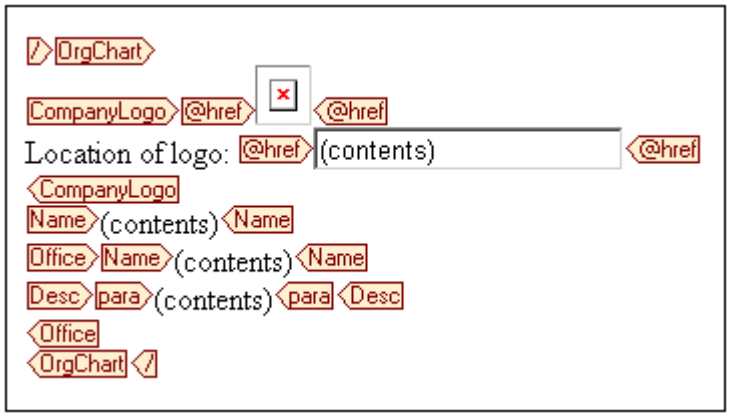
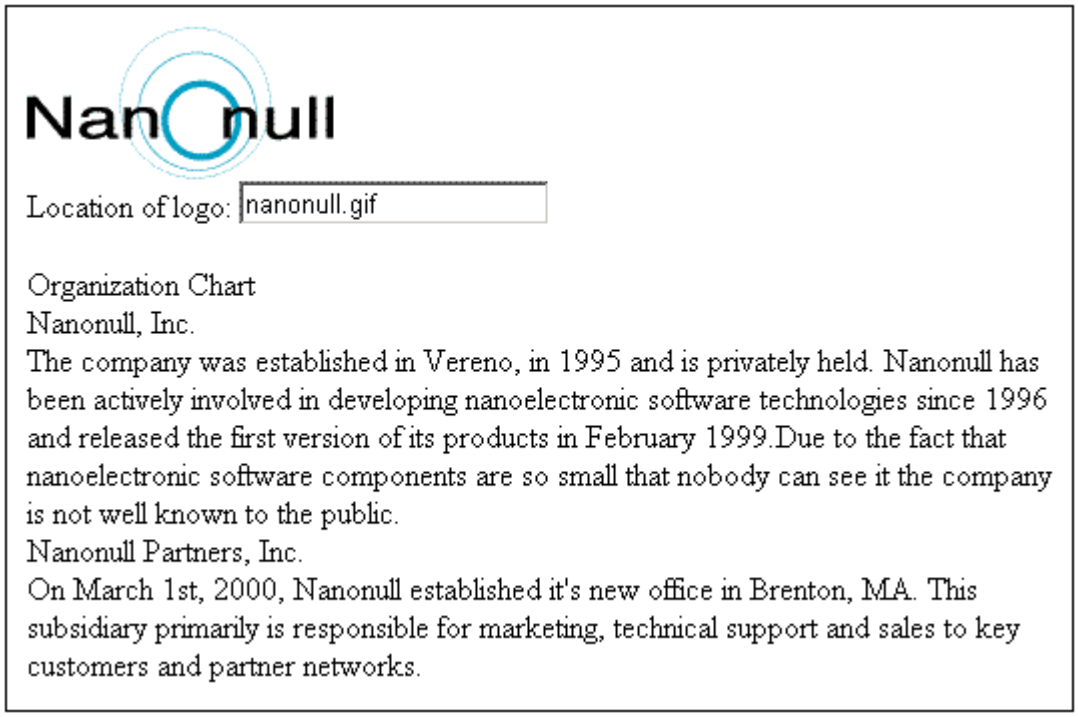
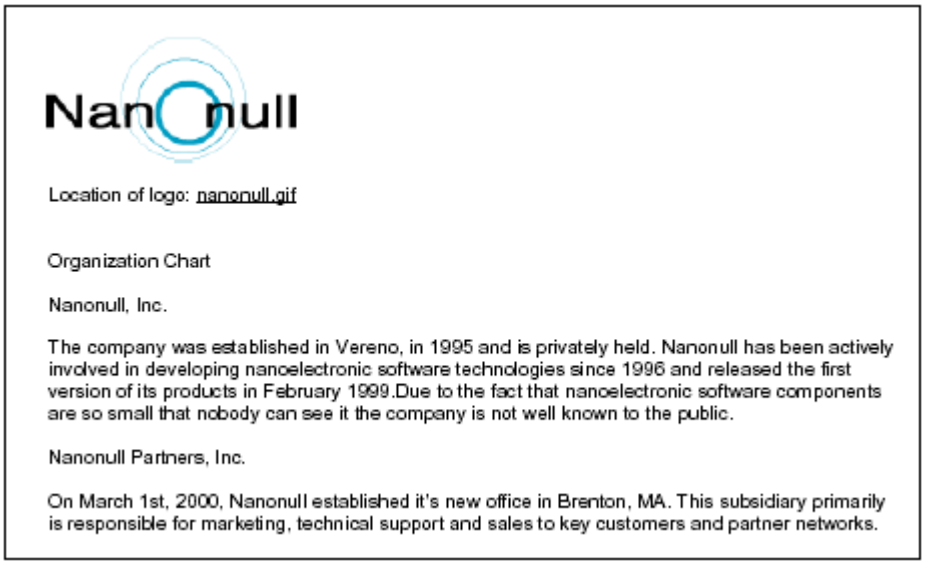


The Authentic and HTML Previews will look like this:


Nanonull
Location of logo: nanonull.gif
Organization Chart
Nanonull, Inc.
The company was established in Vereno, in 1995 and is privately held. Nanonull has been actively involved in developing nanoelectronic software technologies since 1996 and released the first version of its products in February 1999.Due to the fact that nanoelectronic software components are so small that nobody can see it the company is not well known to the public.
Nanonull Partners, Inc.
On March 1st, 2000, Nanonull established it's new office in Brenton, MA. This subsidiary primarily is responsible for marketing, technical support and sales to key customers and partner networks.

The PDF Preview will look like this:


Location of logo: nanonull.gif
Organization Chart
Nanonull, Inc.
The company was established in Vereno, in 1995 and is privately held. Nanonull has been actively involved in developing nanoelectronic software technologies since 1996 and released the first version of its products in February 1999.Due to the fact that nanoelectronic software components are so small that nobody can see it the company is not well known to the public.
Nanonull Partners, Inc.
On March 1st, 2000, Nanonull established it's new office in Brenton, MA. This subsidiary primarily is responsible for marketing, technical support and sales to key customers and partner networks.

Notice that although the formatting in both previews is generally similar, there are some differences. These are because the two outputs have different defaults for their formatting properties. You can override these defaults by explicitly specifying the formatting you want.

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4.5 Formatting the components

The formatting that can be applied to a STYLEVISION Power Stylesheet component is of two types: text formatting and block formatting. Text formatting is applied to text, and includes font sizes, font weights, and font colors. Block formatting can be applied to components that have been explicitly defined as blocks, and include background colors for the block, spacing around the block, and borders for the block. A component can be explicitly defined as a block by assigning it a pre-defined format.

To apply formatting to a component, the following three mechanisms are used, either alone or in combination:

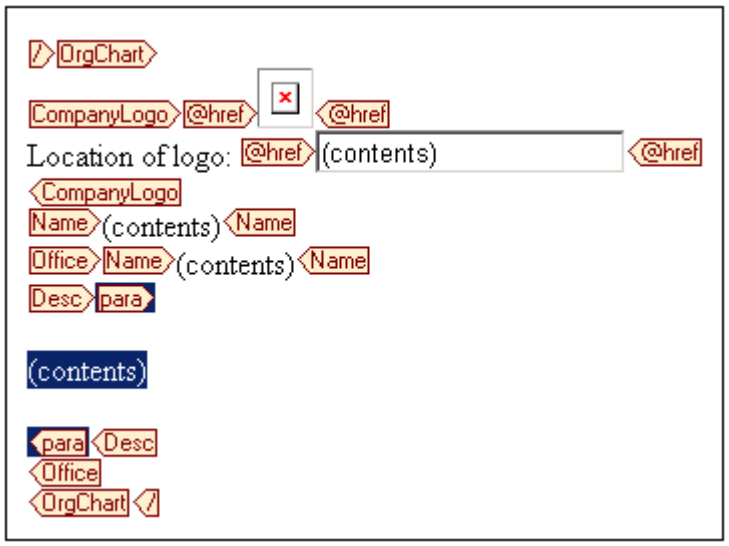
- Applying a pre-defined format (a pre-defined format includes text and block formatting, and is also used to define a component as a block)
- Applying Text Style properties (in the Text Style Window or using toolbar icons)
- Applying Block Style properties (in the Block Style Window; additional properties are available with toolbar icons)

In this section, you will learn to apply formatting using all three mechanisms.

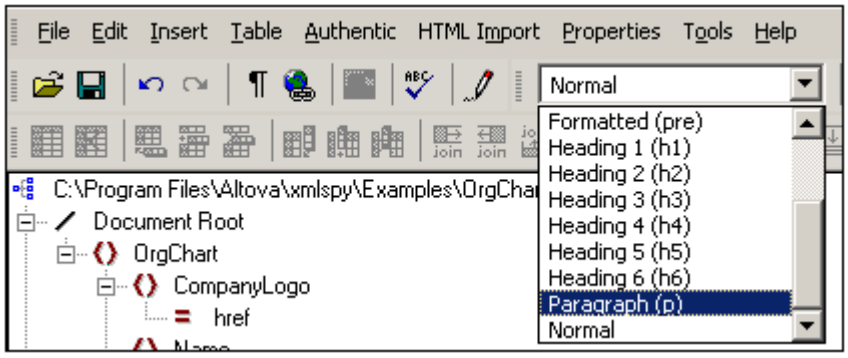
Applying a pre-defined format to para

1. Select the `//Desc/para` element by clicking the start tag of the `para` element.
2. Right-click, and select **Change to | Paragraph**.

This creates the pre-defined paragraph formatting **for each** para element child of `Desc`. The Design Document now looks like this:



Alternatively, select the `(contents)` placeholder of the `//Desc/para` element (by clicking the placeholder), and in the drop-down Pre-defined Format menu in the toolbar (shown below) select **Paragraph (p)**.

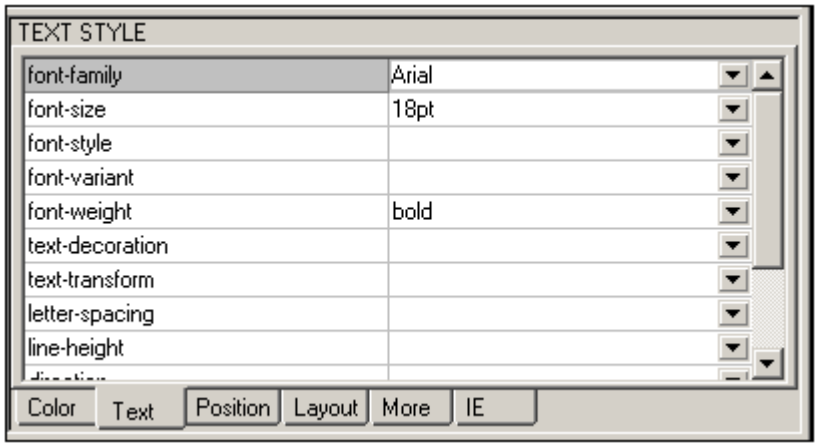


This applies the same formatting as above. Note that in the first case, the **para element was selected** and its processing was changed from normal to paragraph; in the second case the **(contents) placeholder was selected** and a pre-defined paragraph format was applied. In both cases, each para child element of Desc is created as a paragraph.

Note: If you select the para element—and not the (contents) placeholder—and then apply the pre-defined paragraph format (from the Drop-down Format menu in the toolbar), the contents of all para elements in that Desc element will run on and be displayed as a single paragraph, i.e. the entire selection is formatted as a single paragraph.

Specifying Text Style properties

1. Select the (contents) placeholder of the /OrgChart/Name element. Notice that the Text Style Window is enabled, but the Block Style Window is disabled (grayed-out). This is because the selected component is not a block. It gives the appearance of being a block because it is on a line by itself. This effect, however, was created by a line-break—which by itself **does not** make the component a block.
2. In the Text Style Window, select the Text tab, and set the font to Arial, 18pt, bold.



3. Now select the color tab, and specify a color for the text. The component in the Design Window displays the specified formatting.
4. Check the Authentic or HTML Preview, and make changes if required.
5. In the Design Window, select the (contents) placeholder of the //Office/Name element, set the font to Arial, 15pt, bold, and give it a color.
6. Insert a line break before the Office element.
7. Check the Previews, and take a look at the XSLT and XSL-FO code.

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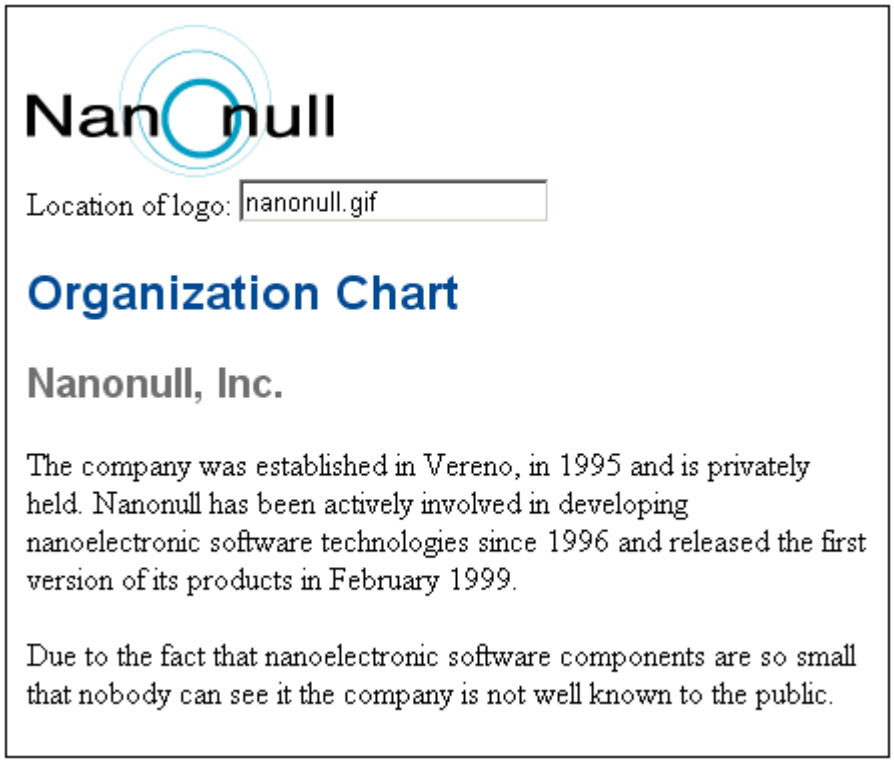
Your Authentic and HTML Previews should look something like this:

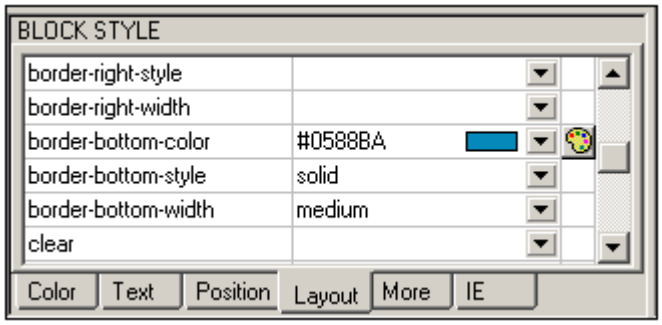

Nanonull
Location of logo: nanonull.gif
Organization Chart
Nanonull, Inc.
The company was established in Vereno, in 1995 and is privately held. Nanonull has been actively involved in developing nanoelectronic software technologies since 1996 and released the first version of its products in February 1999.
Due to the fact that nanoelectronic software components are so small that nobody can see it the company is not well known to the public.

Note: To control vertical spacing for text components, use the line-break feature in the Design Window and/or the properties in the Position tab of the Text Style window.

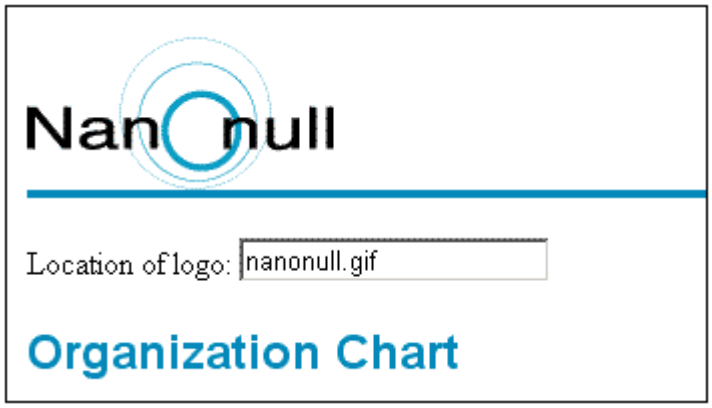
Text formatting icons: You can also make text bold, italic, or underlined by highlighting the text and then clicking the appropriate icon in the toolbar. These icons are shortcuts to creating the required values in the Text Style Window.

Specifying Block Style properties
Block Style properties are applied to blocks via the Block Style Window. In order for this window to be enabled, the selected component must be a block. A component is specified as a block by assigning it any pre-defined format other than `Normal`.

1. Select the `href` element that has been created as an image (not the one created as an Input Field) by clicking its start tag.
2. From the drop-down Pre-defined Format menu in the toolbar, select `Block (div)`. This makes the image display as a block, and enables the Block Style Window.
3. Place the cursor before the `CompanyLogo` start tag and press Backspace to remove the line break.
4. In the Block Style Window, select the Layout tab (shown below), and specify `border-bottom-style=solid`; `border-bottom-width=medium`; and any color for `border-bottom-color`.

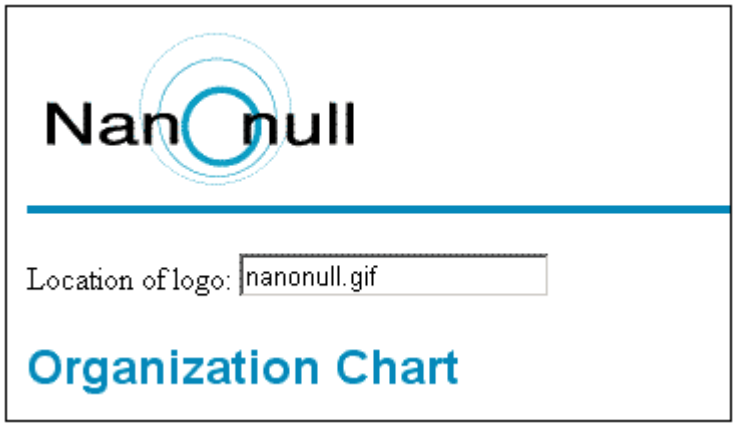


5. Check the Authentic or HTML Preview, which should look like this:



The logo is flush with the left margin of the page and with the bottom border. Some padding would improve the display.

6. In the Design Window, select the `href` element again, and in the Layout tab of the Block Style Window set the `padding-left` and `padding-bottom` properties to 10px. The Authentic and HTML Previews will now look like this:



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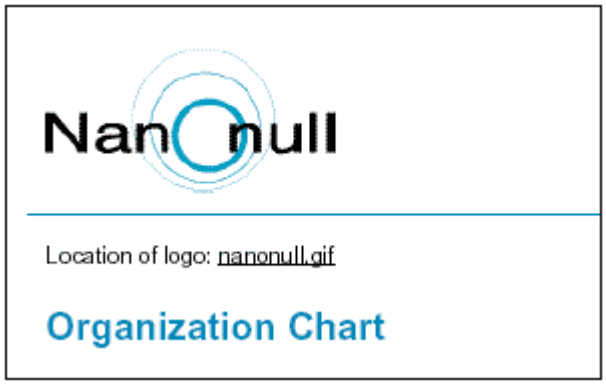
The PDF Preview will look like this:



Now format the components currently in the Design Document as you wish using the pre-defined formats and the Text Style and Block Style Windows.

4.6 Inserting a dynamic SPS table

A dynamic SPS table (hereafter called dynamic table) organizes the child nodes (elements and attributes) of a given element into a table. The table can have headers and footers which can have static or dynamic content. The entire structure of the table, including that of headers and footers, can be modified graphically in the Design Window. One dimension of the table (say the columns) consists of the child elements of the node that is being created as a table; the other (the rows) would then consist of the occurrences of the selected element. Thus the first row would show the child nodes of the first occurrence; the second row the child nodes of the second occurrence; and so on. Dynamic tables are ideal for presenting the content of repeating data structures.

The structure and formatting of a dynamic table are defined by you, the designer of the STYLEVISION Power Stylesheet. The Authentic View user is not allowed to modify the formatting of the table, but can insert, append, or delete occurrences of the element that has been created as the table, i.e. modify one dimension of the table structure. The Authentic View user can also edit the XML content (dynamic content) of the table (except for Auto-Calculation nodes (you specify the input parameters of the Auto-Calculation) and nodes that you specify as non-editable).

Inserting the `Person` element as a dynamic SPS table

The `Department` element has two child elements: `Name` and `Person`. The `Person` element has several child elements: `First`, `Last`, `Title`, etc. Since there are a number of people in a given department, the `Person` element will occur several times. The `Person` element is a repeating data structure.

In this part of the tutorial, you will first insert the department's name and, below it, a table containing the names and other details of the persons in that department. Do the following:

1. Drag the `//Department/Name` element from the schema tree, and drop it just after the end tag of the Desc element. Create it as contents, and give it suitable text formatting.
2. Drag the `//Department/Person` element from the schema tree, and drop it just after the end tag of the `//Department/Name` element.
3. In the pop-up menu that appears, select Create as Table. The Create dynamic table dialog appears:

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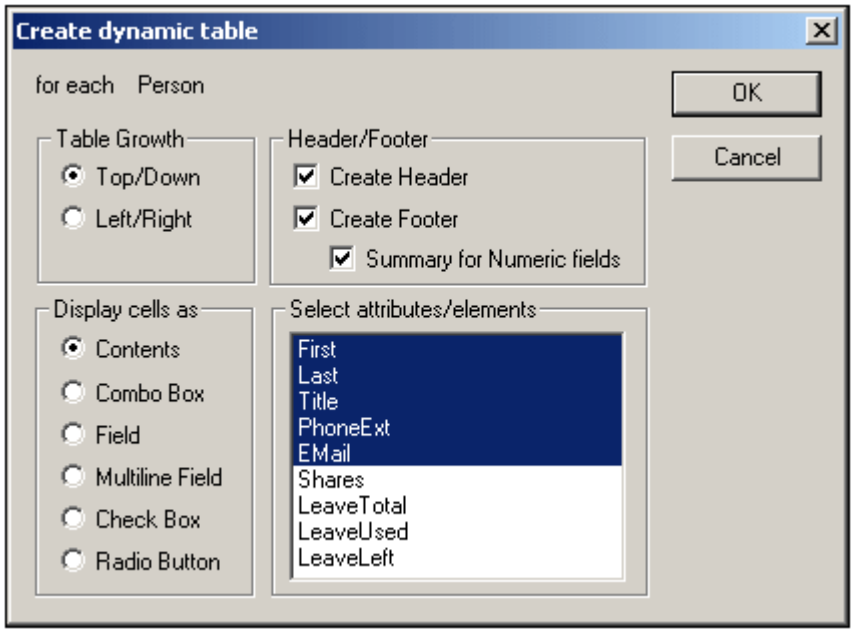
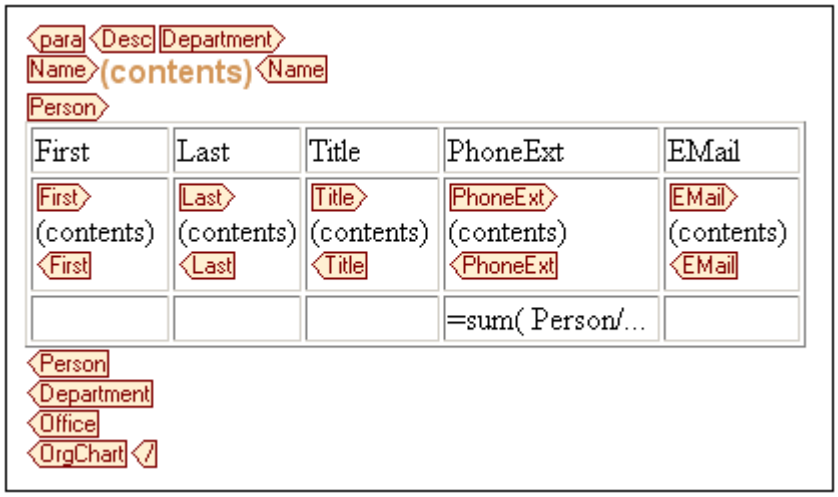
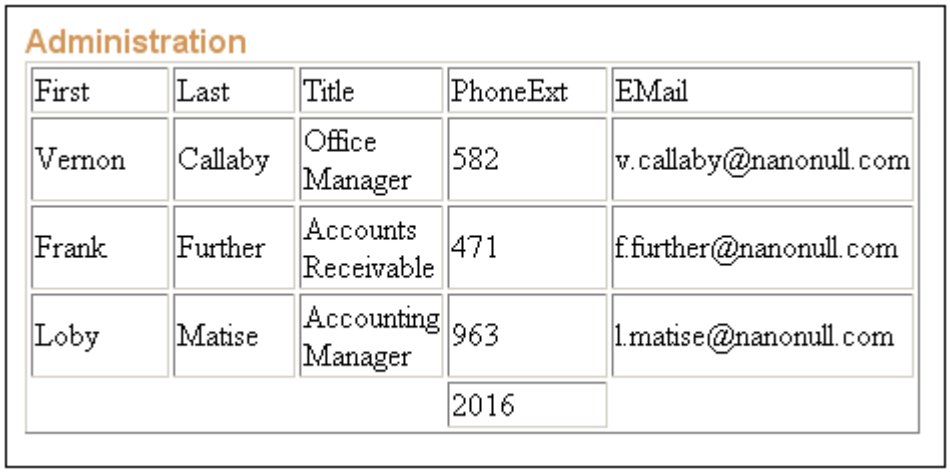


4. All the child element fields are highlighted by default, and will be created as columns. Deselect `Shares`, `LeaveTotal`, `LeaveUsed`, and `LeaveLeft`. The default setting creates a header row for the table, in which the header for each column is the name of the respective child element. If the table grows from top to bottom, you can also create a footer with or without sums of numeric columns. Check the Create Footer and Summary for Numeric Fields checkboxes. Click OK to create the table.
5. To adjust the vertical spacing, put a line break before the `//Department/Name` element and after the `//Department/Person` element. This part of the Design Document will look like this:



Notice that the column headers are the names of the child elements of the `Person` element, and that a footer has been created with a sum of the numeric column for telephone extensions.

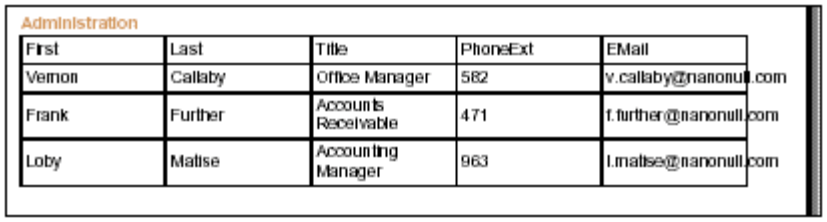
In the HTML Preview, the corresponding output for the first department will look like this:



Administration

First	Last	Title	PhoneExt	EMail
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com
Frank	Further	Accounts Receivable	471	f.further@nanonull.com
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com
			2016	

The PDF Preview will look like this:



Administration

First	Last	Title	PhoneExt	EMail
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com
Frank	Further	Accounts Receivable	471	f.further@nanonull.com
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com

Notice that the contents of the EMail column flow over the cell and table boundary. This is because the email address is a single non-breaking string for which hyphenation is not possible. If you look closely, you will also notice that all the column widths are equal. This is the default for XSL-FO output. The solution would be to change column widths so that long the e-mail column is wide enough to accommodate its content. In STYLEVISION, you can modify column widths and other table properties.

Modifying table properties

To modify the table properties, place the cursor anywhere in the table, and click or **Table | Table Properties**. The following dialog pops up:

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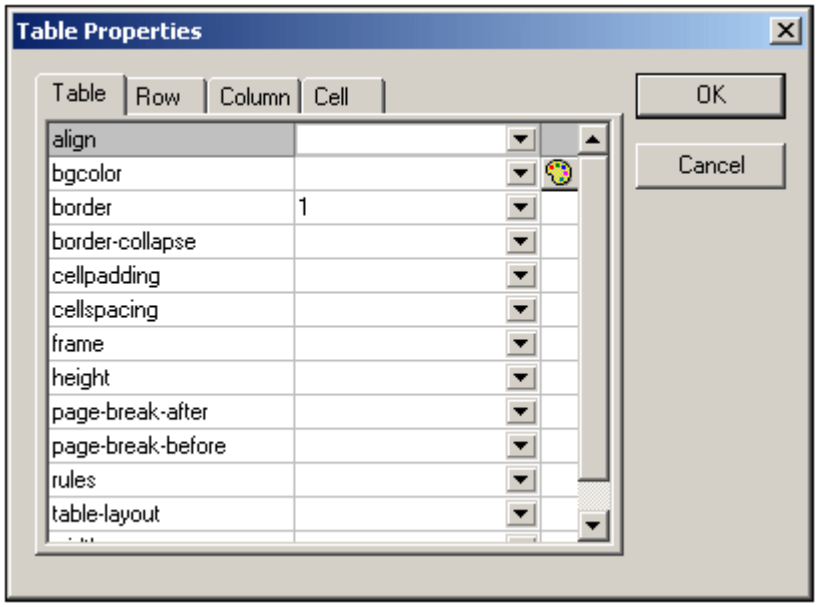


Make the following modifications:

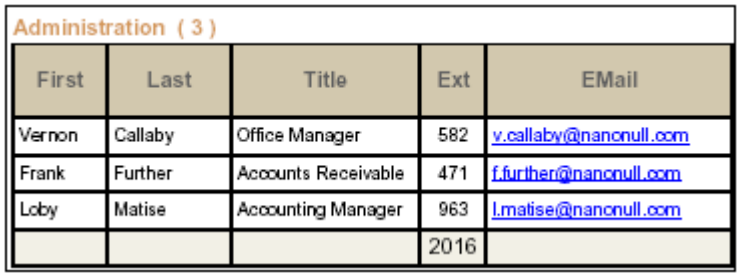
1. For the entire table, in the Table tab, set border to 1, cellpadding to 3, cellspacing to 0, and width to 100%.
2. To give the header row a background color, place the cursor in the header row, click **Table | Table Properties**, and, in the Row tab, specify a bgcolor.
3. Now give the footer row a background color using the same method.
4. To modify the column widths, place the cursor in the first column, click **Table | Table Properties**, and, in the Column tab, specify a width of 15%. Repeat the steps for each column, using the following widths: second column=15%, third column=25%, fourth column=15%, fifth column=30%.
5. If you wish to assign the column headers some text formatting, mark each header, and assign properties in the Text Style Window. You can also set text alignment properties.

   The Authentic and HTML Previews should look something like this:

Administration

First	Last	Title	Ext	Email
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com
Frank	Further	Accounts Receivable	471	f.further@nanonull.com
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com
			2016	

   The PDF Preview will look like this:



Administration (3)

First	Last	Title	Ext	EMail
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com
Frank	Further	Accounts Receivable	471	f.further@nanonull.com
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com
			2016	

Advanced table formatting
Later in the tutorial, we will increase the complexity of this dynamic table, at which stage you will learn advanced table formatting. In the Using Auto-Calculation section, you will append columns to the dynamic table and split the header into two rows. In Creating the Table Footer, you will add content to the footer and format it.

Note:

1. Footers must be created when the table is first created. **You cannot append a row and treat it as a footer.** This is because in the Design Document you will be appending rows to the construct (usually a single row) that defines how each occurrence is displayed. This results in the appended row/s being placed after each occurrence of the element that was created as the table, creating an alternation of occurrence row and appended row/s (not a footer of appended row/s). We will format the footer in the Creating the Table Footer section later in the tutorial.
2. When you set column widths as percentages, they must add up to 100%.
3. You can also modify column widths by dragging column borders. However, it is advisable not to mix different measurement formats (percentages and absolute values) or different measurement units (px and mm).

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4.7 Inserting a static SPS table

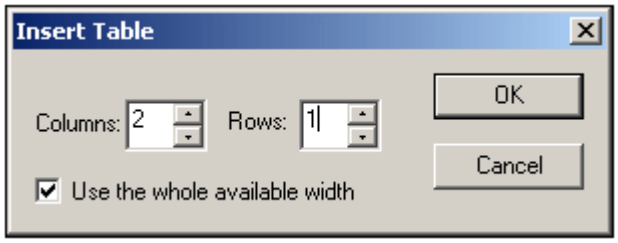
A static SPS table is a STYLEVISION Power Stylesheet component that you use for improved visual presentation. The cells of a static SPS table may contain either dynamic content (from the XML document) or static content (text, images, etc.).

The structure and formatting of a static SPS table are defined by you, the designer of the STYLEVISION Power Stylesheet. The Authentic View user is not allowed to modify either the structure or formatting. The Authentic View user is allowed to edit only the dynamic (XML) content of the table (excepting for Auto-Calculation nodes and nodes that you specify as non-editable).

Inserting a static table with miscellaneous content
The objective is to create a table that presents the contact details of each office in a visually attractive way. Let us put the address in the first column of a two-column table, and the telephone and fax numbers and the e-mail address in the second column. We start with a table of two columns and one row, and edit it as we go along.

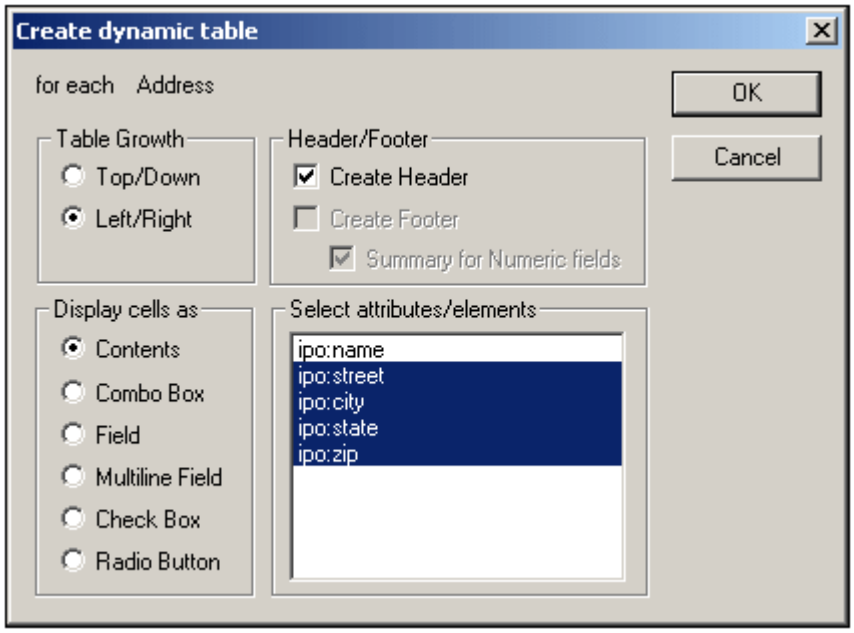
To create the static SPS table, do the following:

1. In the Design Window, place the cursor after the end tag of the `//Office/Name` element (by clicking the element's end tag and pressing Cursor Right). You get a blinking cursor after the end tag of `//Office/Name`.
2. Click , or select **Table | Insert Table**. This causes a static SPS table to be inserted at the cursor location. The Insert Table dialog (shown below) appears.

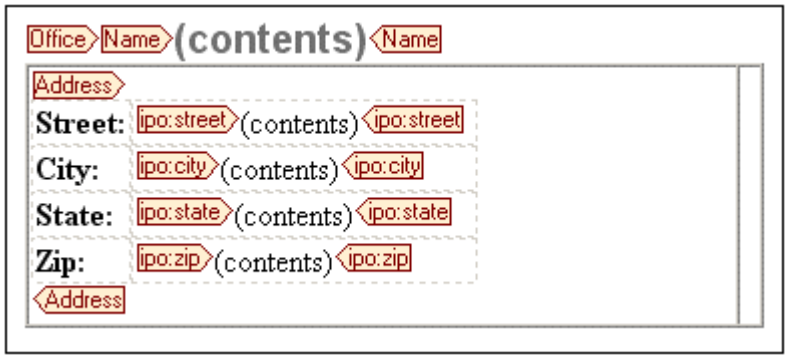


3. In the Insert Table dialog, specify a table of 2 columns and 1 row, and click OK. A 2x1 table is inserted in the Design Document (shown below).

4. Drag the `Address` element from the schema tree and drop it into the first cell of the table.
5. Select Create Table from the popup. This opens the "Create dynamic table" dialog box.



6. Click the "ipo:name" entry (in the Select attributes/elements box) to deselect it.
7. In the Table Growth option, select the Left/Right radio button. Notice that the option for creating a Footer is automatically disabled; it is enabled only when the dynamic table grows top-down. Click OK. This inserts a dynamic SPS table in the first cell of the static SPS table you just created.
8. Set the cellspacing for the outer static table to 0 and the border for the inner dynamic table to 0 (in the Table Properties for each). Then format the field names as shown below. Your Design Document will now look like this:



9. Place the cursor in the second column of the outer static table, and click or select **Table | Insert Table**. In the Insert Table dialog, define the table as having 2 columns and 3 rows. This creates a nested static table in the second column of the outer static table.
10. Click in the first column of the new static table, and enter the text Phone, Fax, and E-mail, respectively in each row of the first column as shown below, and make the font bold. In the Table Properties dialog, set the table border to 0.

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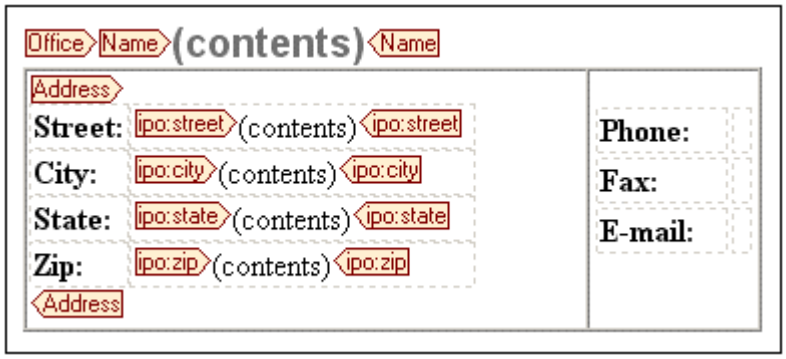
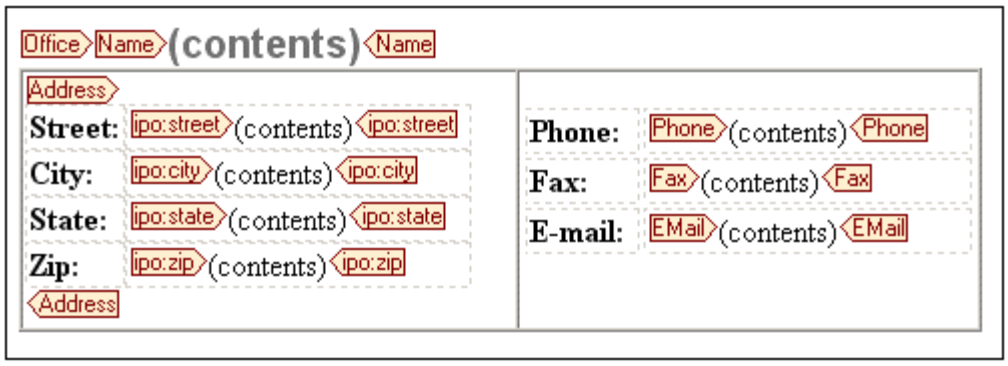
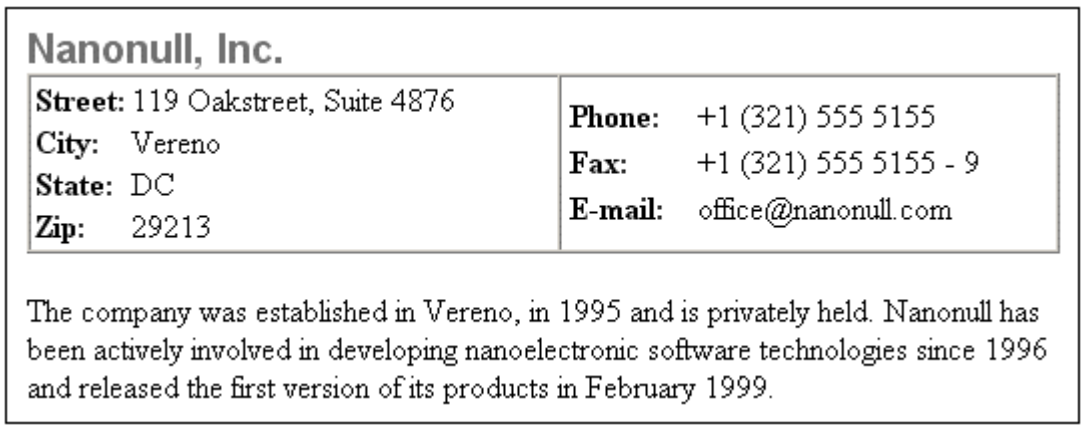


11. Drag the `Phone` element from the schema tree, and drop it into the cell adjacent to that with "Phone" in it. Select Create Contents from the popup.
12. Do the same for the `Fax` and `Email` elements: drop these elements into the appropriate cells, selecting "Create Contents" in both cases.



Check the Authentic or HTML Preview. The static SPS table should look like this:


Nanonull, Inc.
Street: 119 Oakstreet, Suite 4876
City: Vereno
State: DC
Zip: 29213
Phone: +1 (321) 555 5155
Fax: +1 (321) 555 5155 - 9
E-mail: office@nanonull.com
The company was established in Vereno, in 1995 and is privately held. Nanonull has been actively involved in developing nanoelectronic software technologies since 1996 and released the first version of its products in February 1999.

Adjusting the vertical alignment

In the HTML Preview, notice that the text in the two columns are not vertically aligned. You can ensure alignment by vertically aligning both columns of the outer static table, and specifying the same cellspacing value for both nested tables.

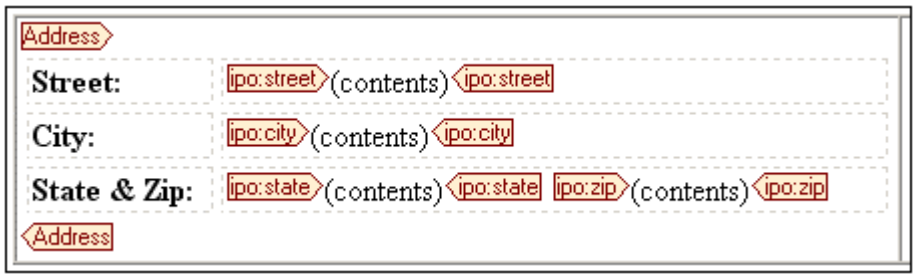
1. Place the cursor anywhere in the first column of the static table, taking care not to place it in the nested table in that column.
2. Click or **Table | Table Properties**, and select the Column tab.
3. For the `valign` property, select the value `top`.
4. Repeat the above three steps for the second column of the outer static table.

5. Specify cellspacing of 4px for both nested tables (in the Table tab of the Table Properties dialog for each table).
6. Check the Authentic or HTML Preview to see the effect of your changes. The text in both columns should now be aligned.

Joining cells
The objective is to have the State and Zip fields appear in a single row (so that both columns have three-row tables). Do the following:

1. Place the cursor in the cell containing the text "Zip:".
2. Click or **Table | Join cell above**.
3. Change the text to "State & Zip:".
4. Place the cursor in the cell containing the contents of the `ipo:state` element.
5. Click or **Table | Join cell below**.
6. Put a space between the two `(contents)` placeholders in the cell.

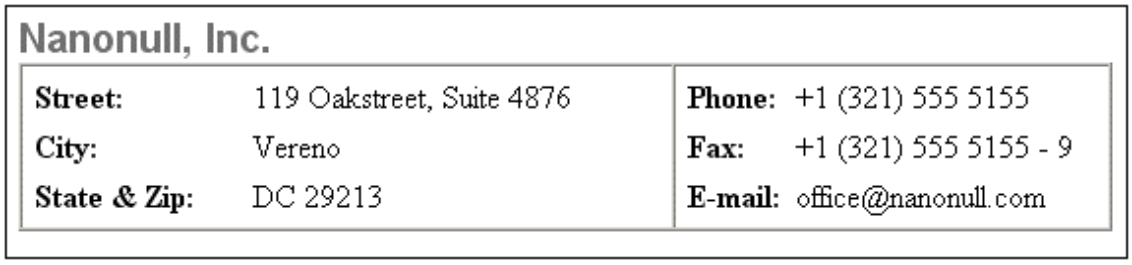
The nested dynamic table in the Design Document will now look like this:



Specifying the widths of columns
Check the Authentic and HTML Previews and PDF Preview so you can judge the optimal column widths to use. After checking the previews, do the following:

1. Place the cursor anywhere in the first column of the outer static table, but not in the nested dynamic table, and click or **Table | Table Properties**.
2. In the Table tab, set (table) `width` to 100%.
3. In the Column tab, set (column) `width` to 60%.
4. Place the cursor in the second column of the outer static table, but not in the nested static table, and click or **Table | Table Properties**.
5. In the Column tab, set (column) `width` to 40%.
6. For the nested dynamic table, set the table width to 100%, width of first column to 30%, and width of second column to 70%.
7. For the nested static table, set table width to 100%, width of first column to 25%, and width of second column to 75%.

The Authentic and HTML Previews of the static SPS table should look like this:


Nanonull, Inc.
Street: 119 Oakstreet, Suite 4876
City: Vereno
State & Zip: DC 29213
Phone: +1 (321) 555 5155
Fax: +1 (321) 555 5155 - 9
E-mail: office@nanonull.com

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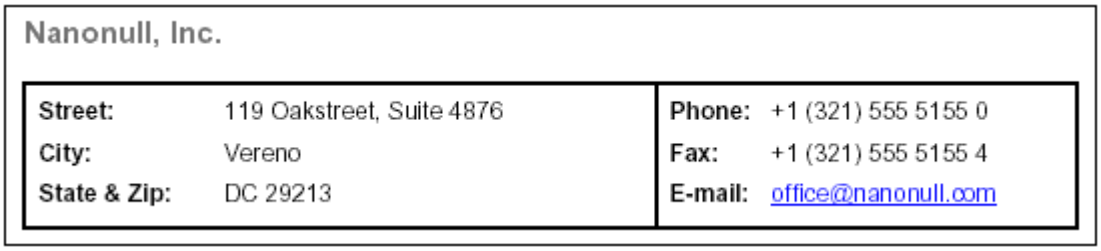
The PDF Preview of the static SPS table should look like this:



Nanonull, Inc.

Street:	119 Oakstreet, Suite 4876	**Phone:**	+1 (321) 555 5155 0
City:	Vereno	**Fax:**	+1 (321) 555 5155 4
State & Zip:	DC 29213	**E-mail:**	office@nanonull.com

4.8 Inserting bookmarks and hyperlinks

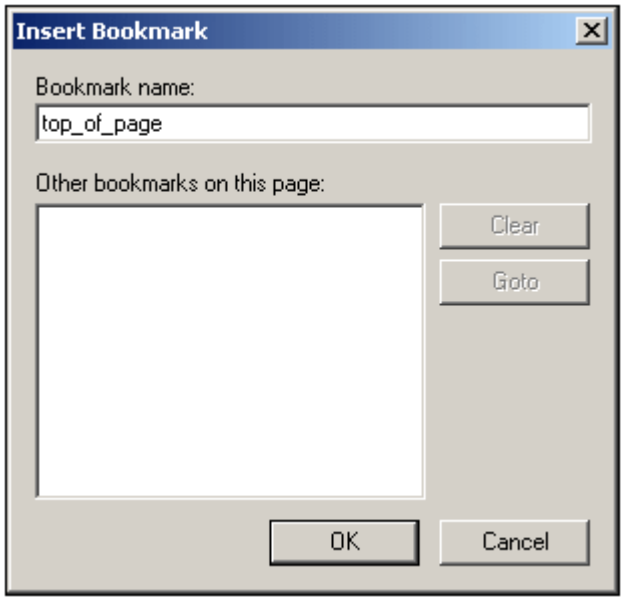
You can create bookmarks (anchors) and hyperlinks in the HTML, PDF, and Authentic View outputs (in Authentic View, hyperlinking is restricted to linking within the document). In the STYLEVISION Power Stylesheet, you can insert a bookmark at any location in the Design Document. You can then insert a hyperlink to a bookmark in the document or to any URL.

In this section you will:

- Create a bookmark at the top of your document.
- Create a hyperlink at the bottom of the document which links back to the bookmark.
- Create a hyperlink to a Website.
- Create a hyperlink to a pre-addressed e-mail.

Creating a bookmark at the top of your document

1. Place the cursor just after the start tag of the `OrgChart` element, and right-click.
2. From the popup menu that appears, select **Insert | Bookmark**. The following dialog appears:



3. Give your bookmark a name, such as `top_of_page`, and click OK. The bookmark is created and is indicated by a flag.

Inserting a hyperlink to a bookmark

1. Place the cursor just before the end tag of the `OrgChart` element, and type in "Go to top".
2. Format this text in the Text Style Window, and modify the line breaks at the bottom of the document to your satisfaction.
3. Highlight the text and right-click.
4. From the popup menu that appears, select **Insert | Hyperlink**. The Insert Hyperlink dialog appears:

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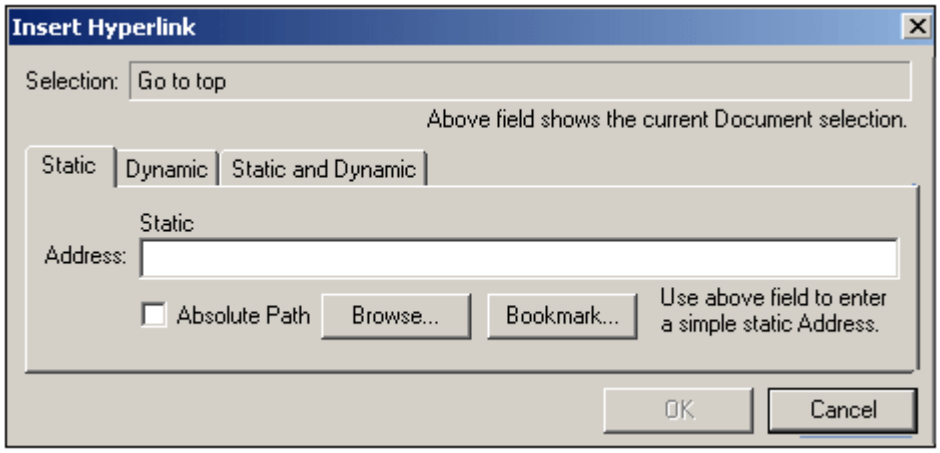
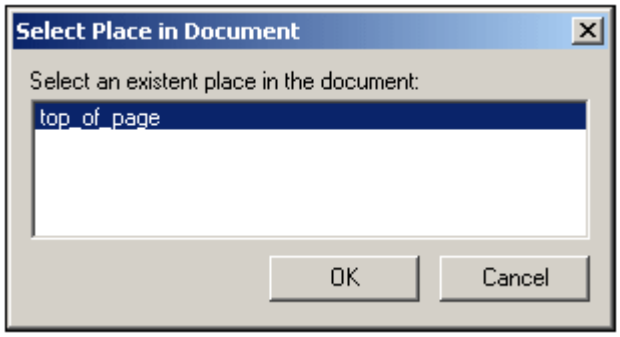


5. Since you want to link to a bookmark, click the Bookmark button. The following dialog appears with all the bookmarks in the document listed.



6. Select the bookmark you want, and click OK. The bookmark appears as the static address of the hyperlink in the Insert Hyperlink dialog, i.e. the hyperlink is explicitly specified in the STYLEVISION Power Stylesheet and is not contained in the XML document.
7. Click OK. The hyperlink is created.
8. In the previews, go to the end of the document, and click the hyperlink "Go to top". The view will change to the top of the document.

Inserting a hyperlink to a Website

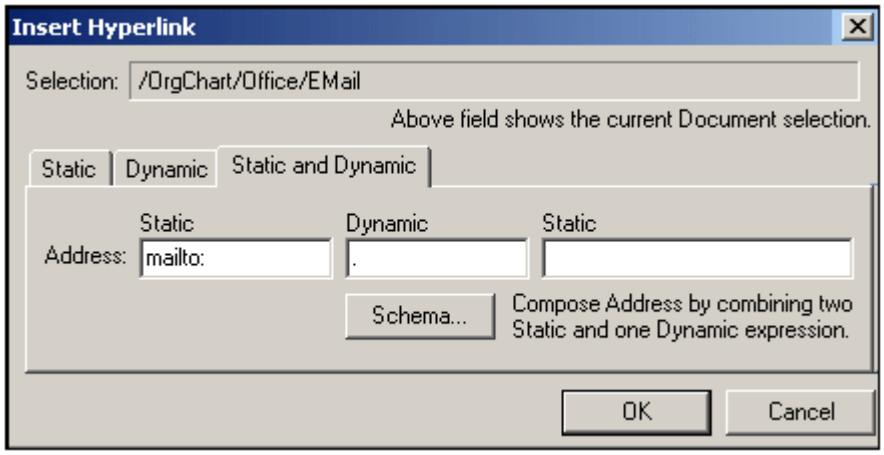
1. Right-click the logo image, and in the popup menu that appears select **Insert | Hyperlink**.
2. In the Insert Hyperlink dialog that appears, enter `http://www.nanonull.com/` as the static address of the hyperlink target.
3. Click OK. The hyperlink is created.
4. In the HTML and PDF documents, click the logo image. The `www.nanonull.com` Web page appears in the view.

Inserting a hyperlink to a pre-addressed e-mail

The objective is to create a link to an e-mail that has in its address field the correct office or employee address.

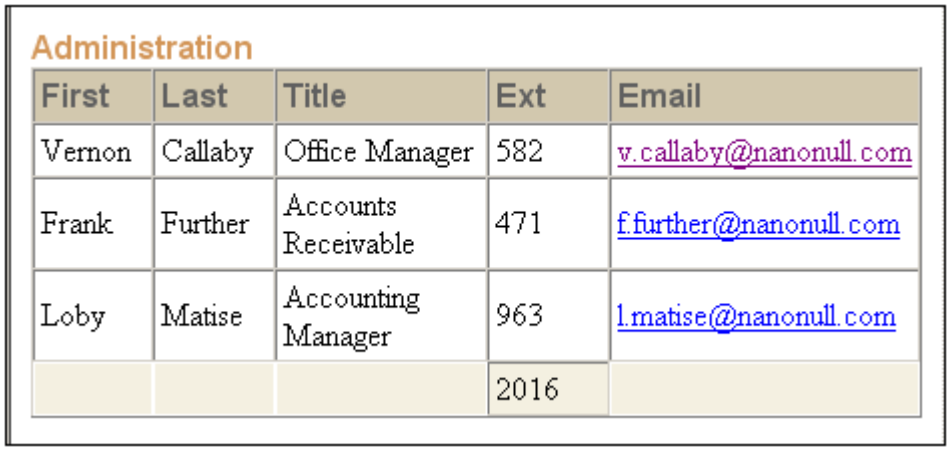
1. In the Design Document, right-click the `/OrgChart/Office/EMail` element (or its `(contents)` placeholder), and in the popup menu that appears select **Insert | Hyperlink**.
2. In the Insert Hyperlink dialog, click the **Static and Dynamic** tab.
3. The address consists of a static part and a dynamic part. Fill these in as shown in the

figure below. (Don't miss the period in the dynamic part of the address; this specifies that the content of the current node (shown in the Selection field) is to be processed.)



4. Click OK. The hyperlink is created. The static `mailto:` part of the address is the protocol part of the URL. The dynamic part of the address is the content of the `//Office/EMail` element, which is the e-mail address of each office, respectively.
5. Right-click the `//Person/EMail` element (or its `(contents)` placeholder), and follow the same steps as for the previous (office) e-mail address. Each person's e-mail address is now a hyperlink, which, on being clicked, generates an e-mail with that person's e-mail address in the Address field of the e-mail.
6. In the HTML and PDF documents, click a few e-mail addresses for various offices and persons. For each, a new e-mail with the correct address will be opened.

The HTML Preview is shown below:



Administration

First	Last	Title	Ext	Email
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com
Frank	Further	Accounts Receivable	471	f.further@nanonull.com
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com
			2016	

Note: In Authentic View, hyperlinking is restricted to linking **within** the document.

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4.9 Using Auto-Calculation

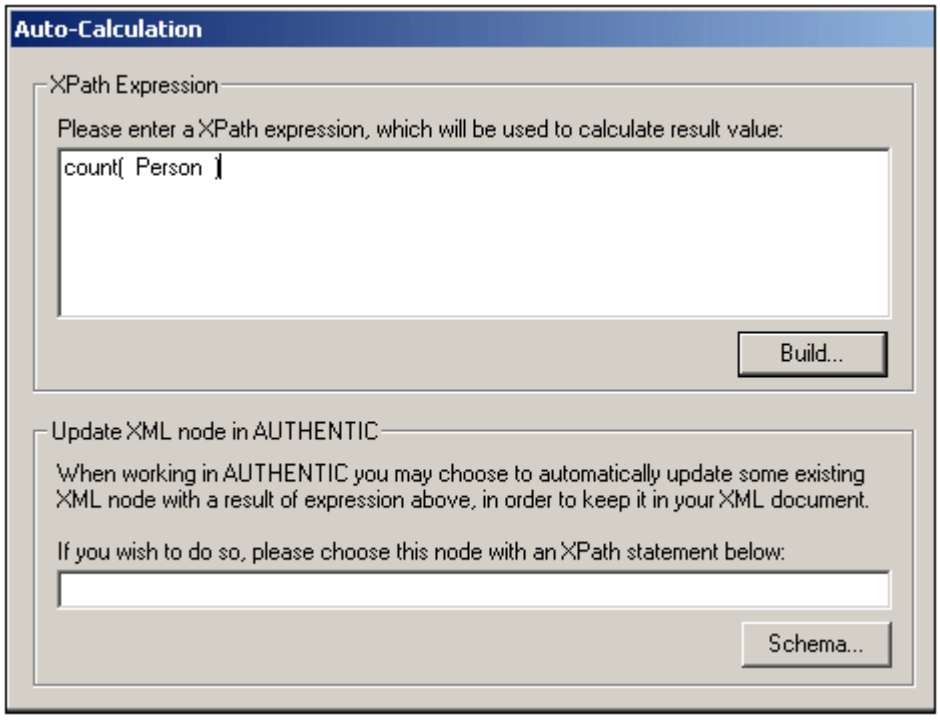
STYLEVISION includes an Auto-Calculation function, which enables you to display the result of a calculation in Authentic View, HTML, and PDF output. The result is calculated using an XPath expression. It changes dynamically when the value of a node used in the XPath expression changes. The Auto-Calculation function is a useful mechanism for including dynamic XML content and calculations based on dynamic content in the output.

In this tutorial, you will use the Auto-Calculation feature to add the following information to your STYLEVISION Power Stylesheet:

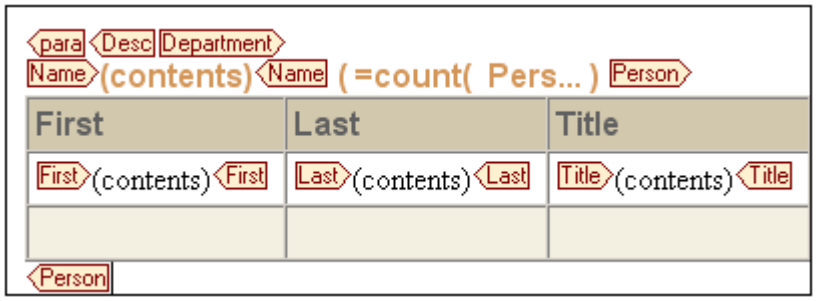
- The number of employees in each department
- The number of departments and employees in each office
- The leave available to each employee, which is the total leave allowed each employee minus the leave used up.

Auto-calculating employees in each department

1. Place the cursor after the end tag of the `//Department/Name` element.
2. Right-click, and from the popup menu select **Insert | Auto-Calculation | Value**. The Auto-Calculation dialog appears:

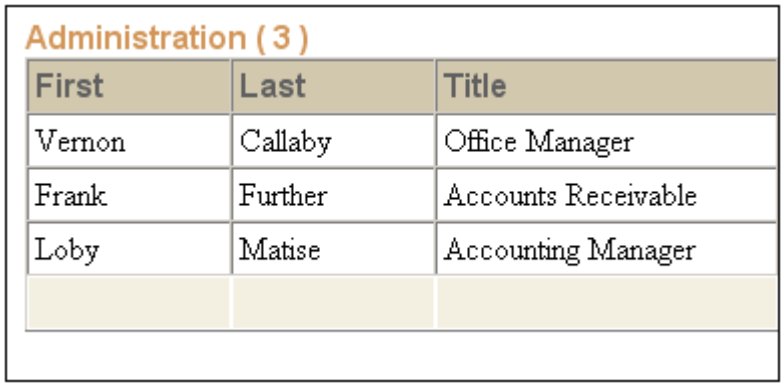

Auto-Calculation
XPath Expression
Please enter a XPath expression, which will be used to calculate result value:
count(Person)
Build...
Update XML node in AUTHENTIC
When working in AUTHENTIC you may choose to automatically update some existing XML node with a result of expression above, in order to keep it in your XML document.
If you wish to do so, please choose this node with an XPath statement below:
Schema...

3. Build the XPath expression by clicking the **Build...** button. Notice that the context node is `Department`, indicated by its being highlighted in gray. Now build the XPath expression: `count(Person)`(by double-clicking the required node and XPath operators and functions). Alternatively, you can type the XPath expression directly into the XPath expression field.
4. Click OK. The Auto-Calculation placeholder is inserted.
5. Format the placeholder as desired using the Text Style Window. This part of the Design Document will look something like this:



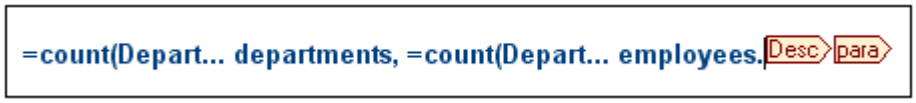
Note that the parentheses in the figure above have been inserted as a design item; they are not placeholder delimiters.

6. Check the HTML and PDF Previews. The HTML Preview of the Auto-Calculation result for the first department is shown below:



Auto-calculating departments and employees in each office

1. Place the cursor in front of the start tag of the `//Office/Desc` element. (Note that the context node will therefore be `Office`.)
2. Use the method above to create Auto-Calculation values for the number of departments (`count(Department)`) and the number of employees in the department (`count(Department/Person)`).
3. Add the word "departments" after the auto-calculation for the number of departments, and "employees" after the auto-calculation for the number of employees.
4. Format the line as required.



5. Insert the `//Address/ipo:city` element as contents before the Auto-Calculation placeholders, and append the words "Office Summary" so that the line in the STYLEVISION Power Stylesheet now looks similar to this.

6. Format the inserted components as required. The corresponding line in the Authentic and HTML Previews should look something like this:

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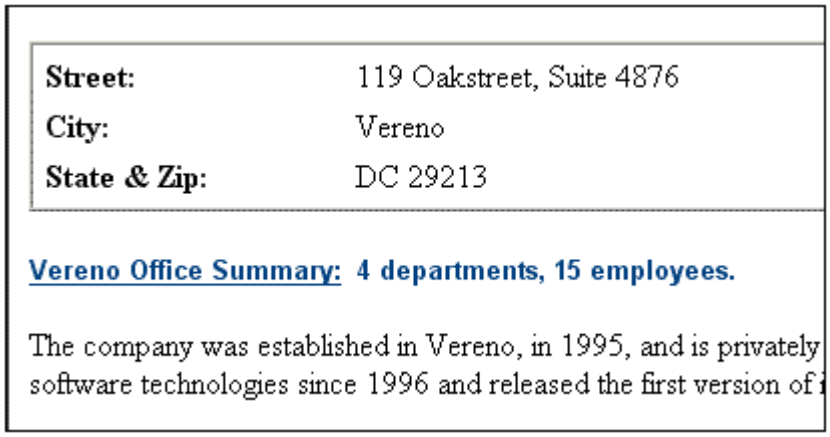
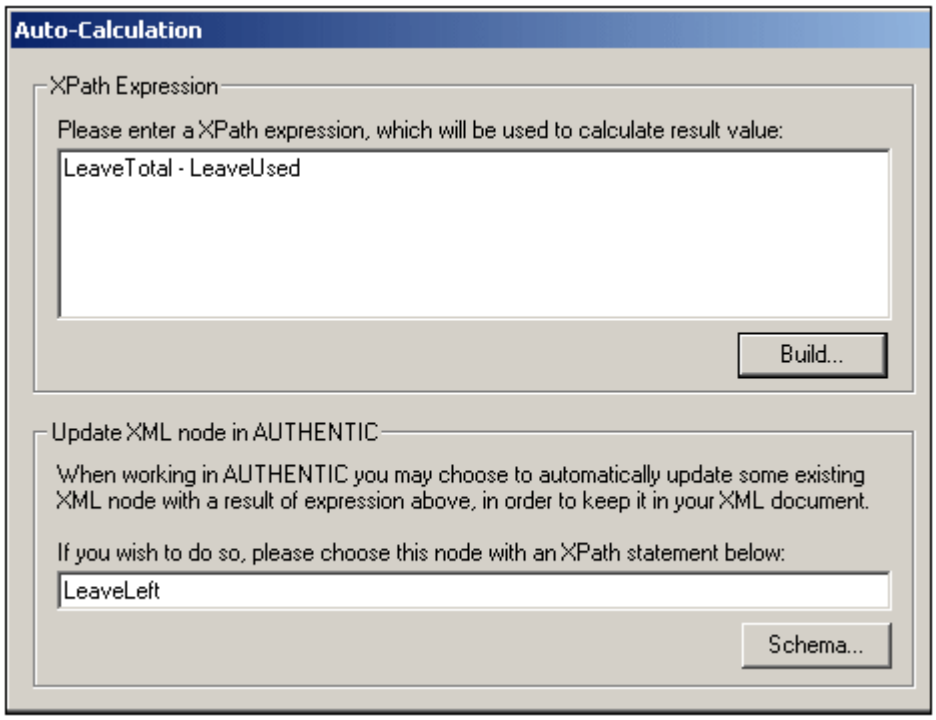

Street: 119 Oakstreet, Suite 4876
City: Vereno
State & Zip: DC 29213
Vereno Office Summary: 4 departments, 15 employees.
The company was established in Vereno, in 1995, and is privately
software technologies since 1996 and released the first version of

Including the leave details
The objective is to allow the Authentic View user to edit the `LeaveTotal` and `LeaveUsed` entry for each employee. The `LeaveLeft` is auto-calculated (`LeaveTotal` minus `LeaveUsed`), and displayed.

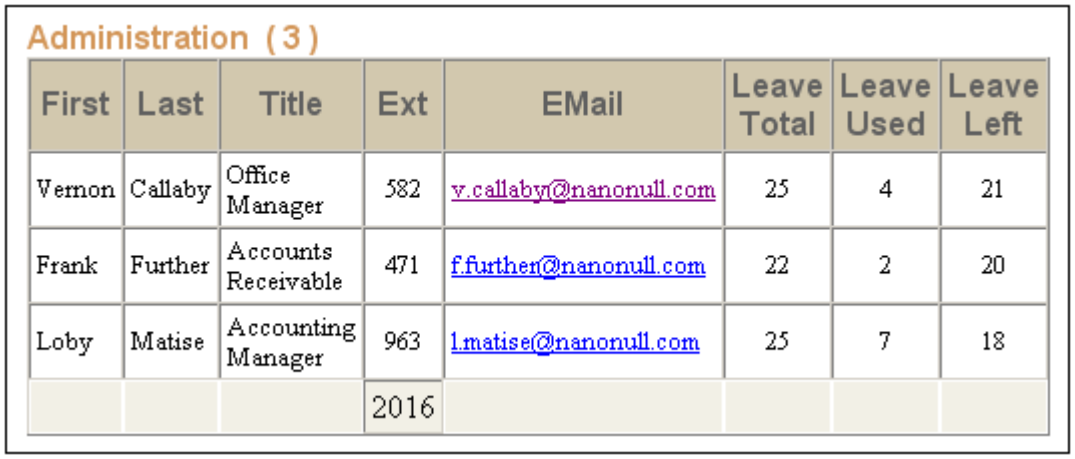
Appending the LeaveTotal, LeaveUsed, and LeaveLeft columns

1. Place the cursor anywhere in the dynamic table for the `Person` element and click **Table | Append Column** or the icon thrice to create three new columns.
2. Type in "Leave Total", "Leave Used" and "Leave Left" as the headers of the three appended columns, respectively.
3. Format the headers appropriately.
4. Drag the `LeaveTotal` and `LeaveUsed` elements from the schema tree into the Leave Total and Leave Used columns respectively, and create them as contents.
5. In the Leave Left column, create an Auto-Calculation (`LeaveTotal-LeaveUsed`). See figure below.


Auto-Calculation
XPath Expression
Please enter a XPath expression, which will be used to calculate result value:
LeaveTotal - LeaveUsed
Build...
Update XML node in AUTHENTIC
When working in AUTHENTIC you may choose to automatically update some existing XML node with a result of expression above, in order to keep it in your XML document.
If you wish to do so, please choose this node with an XPath statement below:
LeaveLeft
Schema...

6. Set `LeaveLeft` as the node to be updated. This updates the XML value of `LeaveLeft` whenever the Authentic View user edits the `LeaveTotal` or `LeaveUsed` value.
7. To accommodate the new column, change the font size of all the element contents in the cell to 10pt.
8. Change the table properties as follows: Place the cursor by turn in each of the three new columns, and for each column, in the Table Properties dialog (Column tab), set `align` to center. Reset all the column widths as follows: First = 10%; Last = 13%; Title = 20%; Ext = 7%; EMail = 26%; Leave Total = 8%; Leave Used = 8%, Leave Left = 8%.

The Authentic and HTML Previews will look like this:

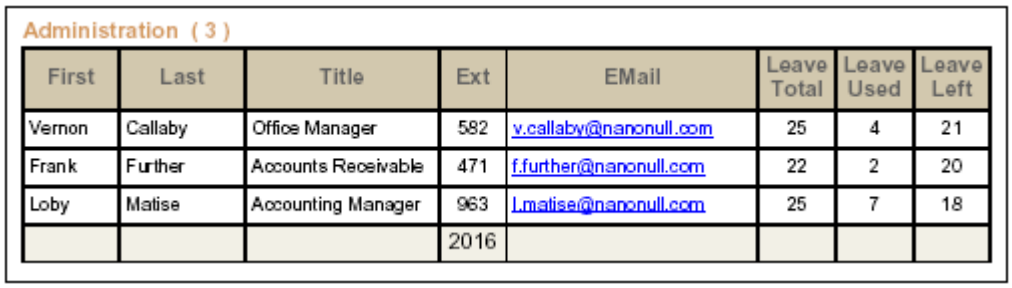


Administration (3)

First	Last	Title	Ext	EMail	Leave Total	Leave Used	Leave Left
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	25	4	21
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	22	2	20
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	25	7	18
			2016				

Notice that although the Leave fields are numeric fields, no summary has been created for these columns in the footer. This is because the Leave columns were appended to the table after the table was created. (If you wish to add a summary for a numeric field after the footer has been created, insert an auto-calculation for that column in the footer.)

The PDF Preview will look like this:



Administration (3)

First	Last	Title	Ext	EMail	Leave Total	Leave Used	Leave Left
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	25	4	21
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	22	2	20
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	25	7	18
			2016				

Note: In the PDF output, if a table overflows onto a new page, the footer (with the full table summary) is inserted before the page-break and the header is created again at the top of the new page.

Restructuring the table header

The header can be restructured by splitting and joining cells. Content of header cells can also be modified, and can include both static and dynamic content. Restructure as follows:

1. Place the cursor in the header cell "Leave Total", and click

or **Table | Split Cell Vertically**.
2. Do the same for the Leave Used and Leave Left headers.
3. Place the cursor in the cell containing the text "Leave Left", and click

or **Table |**

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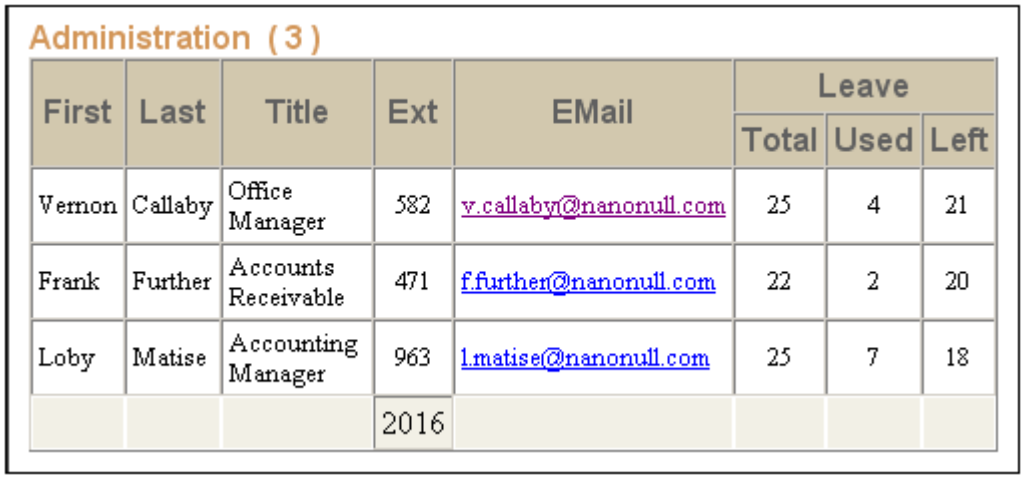
Join Cell Left.

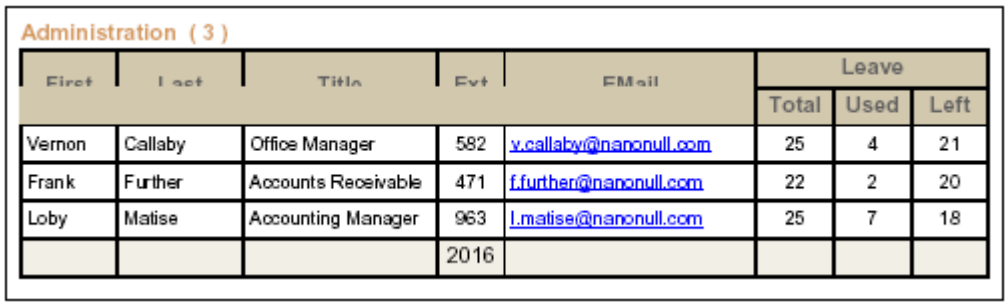
4. Click or **Table | Join Cell Left** once more.
5. Now edit the text in these header cells as shown in the HTML Preview below.



Administration (3)

First	Last	Title	Ext	EMail	Leave		
					Total	Used	Left
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	25	4	21
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	22	2	20
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	25	7	18
			2016				

Now look at the PDF Preview.

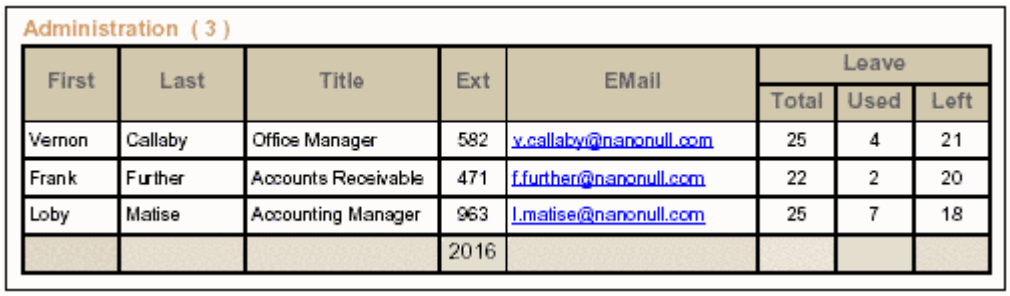


Administration (3)

First	Last	Title	Ext	EMail	Leave		
					Total	Used	Left
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	25	4	21
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	22	2	20
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	25	7	18
			2016				

The background-color of the second row of the header is painted over the first row, covering the bottom part of text in header columns that have not been horizontally split. This is because of the way FOP currently renders tables. The workaround is to remove the background-color from the second row (and, if you wish, from the first row as well), and then apply background-color to each cell of the header. Do this as follows

1. Place the cursor in the cell with the text "Total".
2. In the Table Properties dialog (**Table | Table Properties**), go to the Row tab, and delete the entry for `bgcolor`.
3. Place the cursor in the header cell with the text "First", and in the Table Properties dialog, go to the Cell tab, and enter the value for `bgcolor`.
4. Repeat Step 3 above for each header cell of the table. The header in the PDF will now look like this:



Administration (3)

First	Last	Title	Ext	EMail	Leave		
					Total	Used	Left
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	25	4	21
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	22	2	20
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	25	7	18
			2016				

General Note:

- Auto-Calculation can also be created as an Input Field, but the node is non-editable in Authentic View—as is the case with all Auto-Calculations. The Input Field in this case is intended only as a presentational device.
- When an existing XML file is opened in Authentic View, Auto-Calculations are carried out, and the correct Auto-Calculation value is displayed in Authentic View. However, no value in the XML document will be modified. It is only when the user edits a node that is used in the XPath expression of an Auto-Calculation that XML values affected by such an Auto-Calculation are changed.
- When the Authentic View user appends a new `Person` element, all mandatory children are created with empty content. This is because adding mandatory children is the default setting for the `Person` node; it can be changed in the Authentic Node Settings dialog for the `Person` node (select the `Person` element in the Design Window and click **Authentic | Node settings...**). Any non-mandatory child of the `Person` element is indicated with the prompt `Add` *`element-name`*.

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4.10 Using Conditional Templates

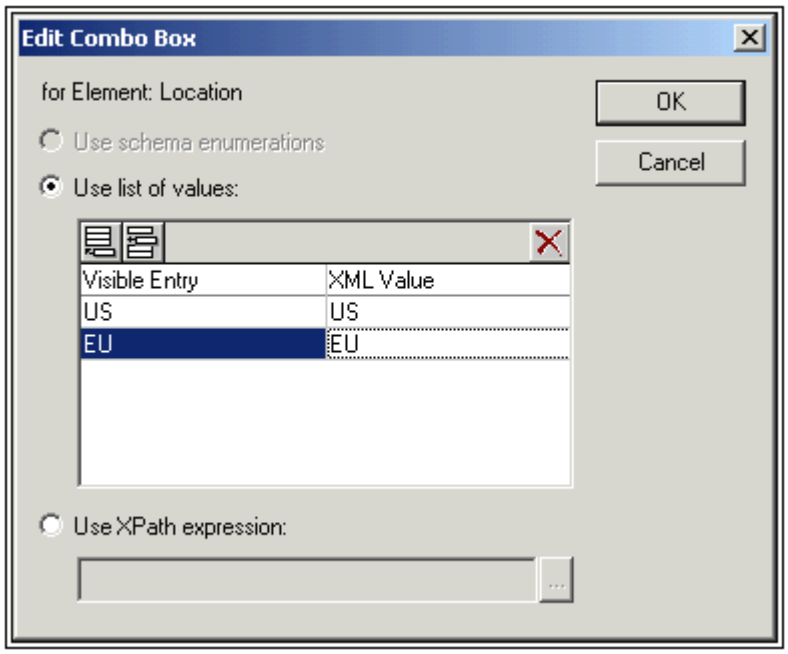
A conditional template defines how a component is to be processed in the event that a specified condition is fulfilled. Multiple conditions can be specified for a component, thus allowing you to provide alternative ways to process a component for a range of conditions. In this section of the tutorial, you will create conditional templates for the following situations:

- Depending on whether an office is located in the US or Europe, the address field will be structured differently.
- In the Office Summary statement, a condition will be used to select the correct city element dependng on whether the US or EU address model is used.
- If an employee is a shareholder, the employee's name will be displayed in bold.

Setting up alternative address content models based on a condition
The objective is to display the appropriate address content model depending on whether the office is located in the US or European Union (EU). You will first create a combo box to accept input for the `Location` element (US or EU), and then create two conditional templates. One conditional template defines that, if the `Location` element has a value of US, the address content model for US locations is used. The other conditional template causes the address content model for EU locations to be used if the value of `Location` is EU.

Include the `Location` element in the STYLEVISION Power Stylesheet as follows:

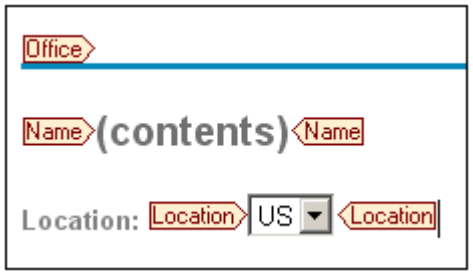
1. Put a line above the `//Office/Name` element by making it a block (**Insert | Format | Block (div)**) and by assigning, in the Layout tab of the Block Style Window, suitable values for the following properties: `border-top-color`, `border-top-style`, and `border-top-width`.
2. Insert a line-break after the `//Office/Name` element, and type in "Location: ".
3. Drag the `Location` element from the schema tree, drop it immediately after the text "Location: ", and create it as a combo box. The following dialog appears (without any entries):



4. Click the Append Row icon twice to append two rows in the dialog box. Enter the two values for US and EU as shown in the figure above. The Visible Entry is the entry that will be visible in the combo box and available for selection. The XML Value is the

corresponding value that will be entered in the XML file when a Visible Entry is selected.

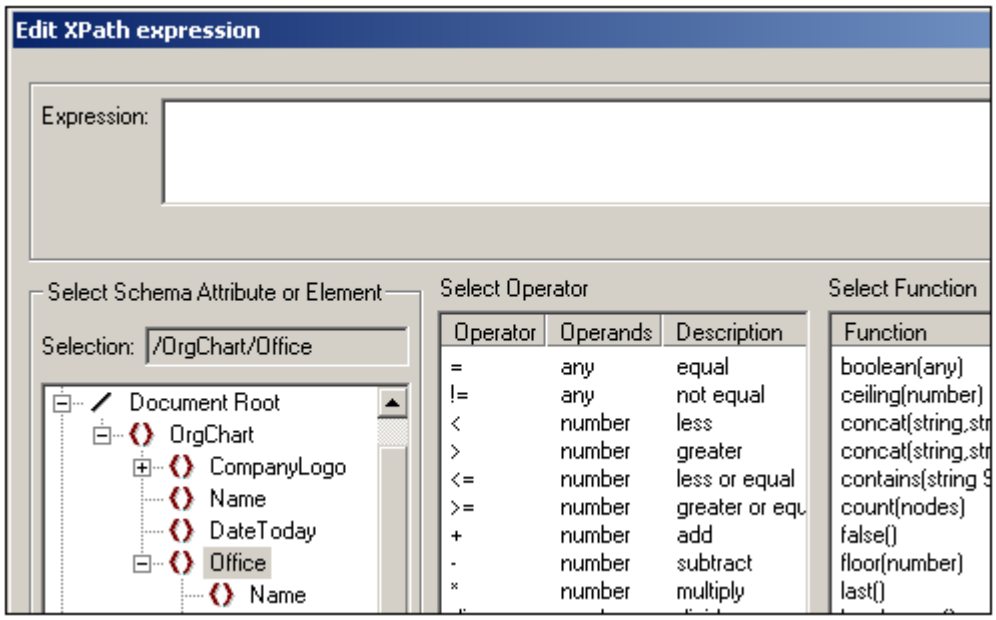
5. Click OK when done. The Design Document will now look something like this:



The corresponding output in Authentic Preview will look like this:

Now specify the conditions that determine the selection of the appropriate address content model. Do the following:

1. Right-click the `Address` element in the static table, and select **Insert | Condition...** to insert a condition for the entire `Address` component in the STYLEVISION Power Stylesheet. The Edit XPath expression dialog appears:



Notice that, in the Select Schema Attribute or Element pane, the `Office` element is highlighted in gray. This indicates that `Office` is the context node, and that the XPath expression will be created relative to it. You can build the XPath expression by double-clicking the required elements/attributes, operators, and functions. Alternatively, you can type the correct XPath expression directly into the Expression field.

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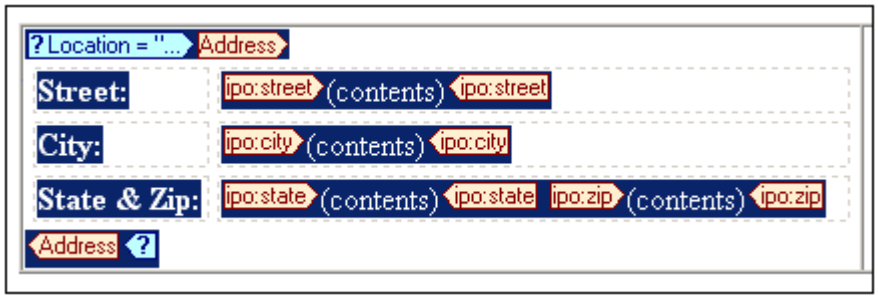
2. Build the expression by double-clicking the `Location` element in the Select Schema Attribute or Element pane. This causes `Location` to be entered into the Expression field. Then click the = operator, and enter `"US"`. The XPath should read: `Location = "US"`.
3. Click OK. The start and end of the conditional template are indicated by cyan tags with a question mark: ?Location = "..." ?. The conditional template in the Design Document will look like this:

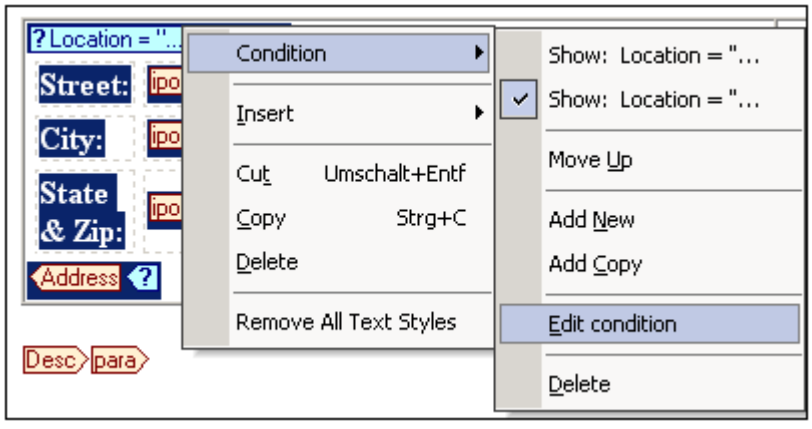


   Notice that the entire dynamic table contained by the `Address` element is contained by the tags of the conditional template. This is because you have inserted the condition around the `Address` element.
4. Since the content model of the `Address` element already in the table is that for the US, do not alter it.

This conditional template defines that its contents will be processed and displayed as specified when the `Location` element has content with a value of US.

Now create a conditional template for displaying the content model for European addresses whenever the value of the `Location` element is EU. Do the following:

1. Right-click either of the condition tags of the conditional template you have just created, and select **Condition | Add Copy**.
2. In the Edit XPath expression dialog that appears, enter or build the XPath: `Location = "EU"`.
3. Click OK. You have now created a second conditional template. Only one conditional template is shown at a time. To see which conditional template is currently displayed, right-click, and select **Condition**. The following context menu appears:

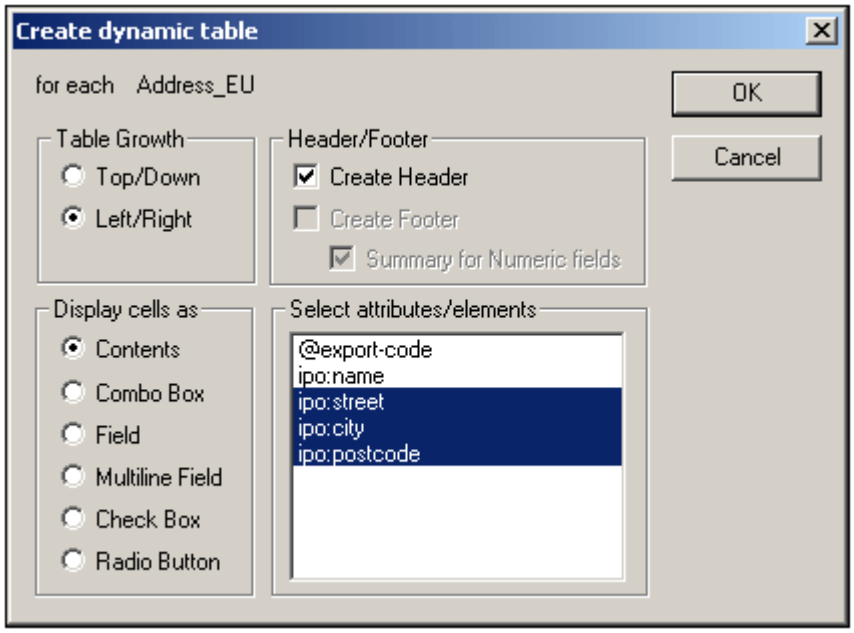


   Which conditional template is currently displayed is indicated with a check mark next to it. (If you wish to edit a condition, select **Edit condition**.)

The currently displayed conditional template specifies processing to be carried out when

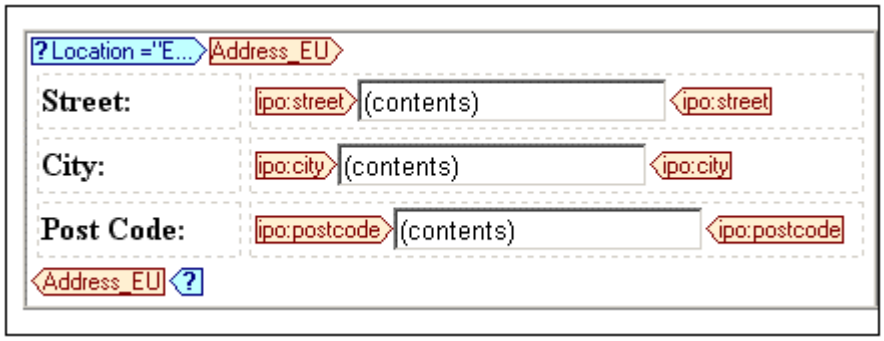
`Location` has a value of EU. The address content model within it, however, is that for the US (since this is a copy of the first conditional template). Change this as follows:

1. Delete the entire `Address` element (by clicking either its start or end tag, and pressing Delete).
2. From the schema tree drag the element `Address_EU` into the static table, drop it between the conditional template tags, and create it as a table. The following dialog appears:



3. Deselect `@export-code` and `ipo:name`. Select Create Header; Table Growth Left/Right; and Display cells as Field.
4. Click OK. The table is created.
5. Format the headers in bold (by highlighting the text and clicking the Bold icon or setting `font-weight` to bold);
6. Set the following table properties: `border` to 0; `cellspacing` to 4px; `table-width` to 100%.

The Design Document looks like this:



Note that the EU address components have Input Fields; the US address components are created as normal text. However, both types of display can be edited in Authentic View.

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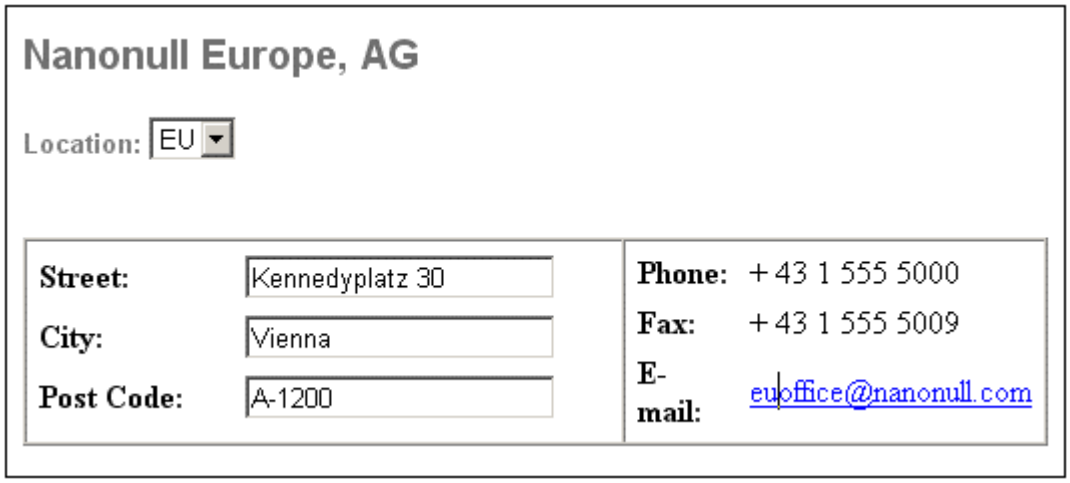
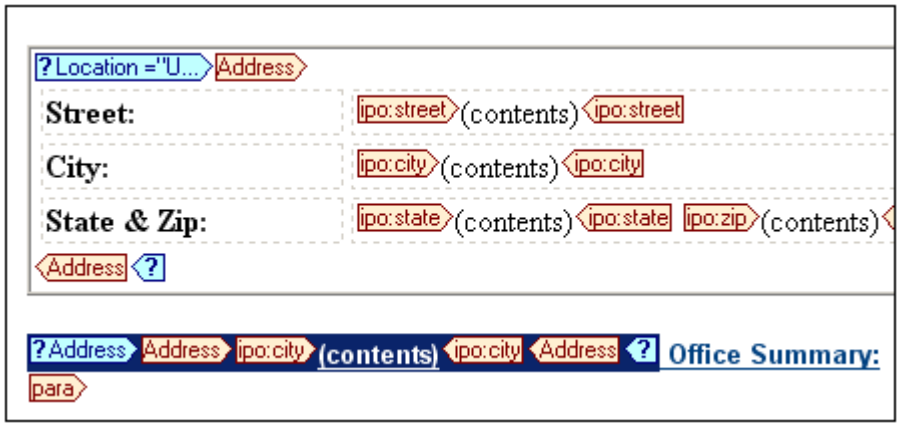
The Authentic Preview looks like this:

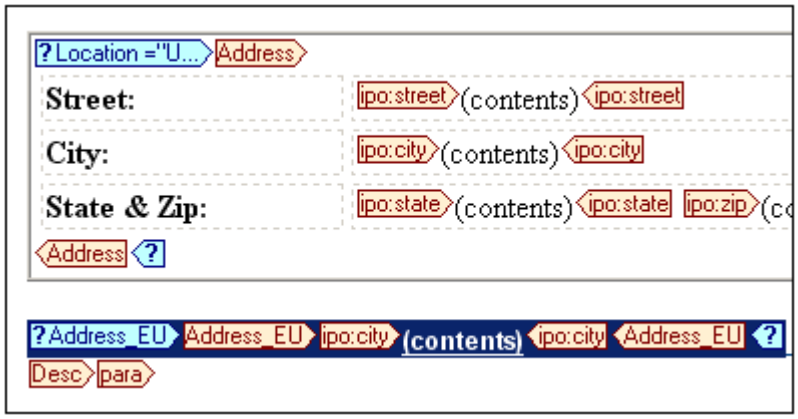


Creating a condition to select the correct city element
In the Office Summary line for each office the city is selected using an Auto-Calculation. Since the city element is a different element in each of the address content models (US and EU address content models), a condition must be created to select the correct city element. Do this as follows:

1. Right-click the `Address` element in the Office Summary line, and select **Insert | Condition...**.
2. In the Edit XPath expression dialog, the context node is `Office`. Enter the XPath: `Address`, and click OK. This creates a conditional template in which the condition tests for the presence of an `Address` child element. The Design Window will look like this:



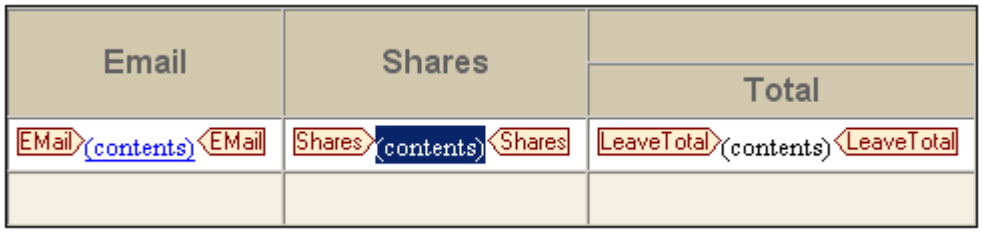
3. The `//Address/ipo:city` element is the correct child of the `Address` element, so do not alter the content of this conditional template. The result is that when the address element is `Address`, the content of the `//Address/ipo:city` element will be selected.
4. Right-click the conditional template tag, and select **Insert | Condition... | Add New**.
5. In the Edit XPath expression dialog, enter the XPath: `Address_EU`, and click OK.
6. Drag the `//Address_EU/ipo:city` element into the Design Window, and create it as contents of the new conditional template. The Design Window will look like this:



The result is a condition that selects the content of the `//Address_EU/ipo:city` element when the address element is `Address_EU`.

Creating a condition to make shareholders' names bold
In the dynamic table for the `Person` element, you will first create a column for the number of shares each employee holds. Then create a conditional template around the `First` element to display the element's content in bold if the `Share` element is non-empty and greater than 0. Do the following.

1. Place the cursor in the Leave column, and click **Table | Insert Column** or the icon to insert a column before the Leave column.
2. Type in the column header Shares, join the two header cells of the column, and format the header text.
3. Drag the element `Shares` from the schema tree into the Shares column body. Create the element as content.
4. Set font-size of the `Shares` element content to 10pt. The column should look like this:



4. Check the display of the Shares column in the Authentic and HTML Previews, and in the PDF Preview.
5. Now right-click the `(contents)` placeholder of the `First` element, and select **Insert | Condition...**. This pops up the Edit XPath expression dialog:

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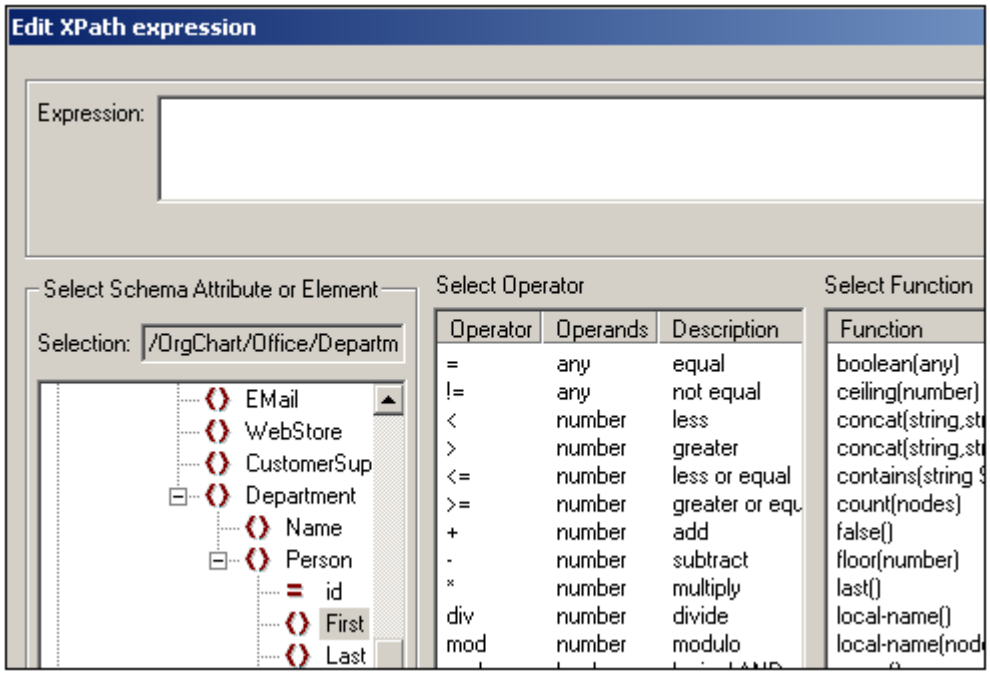
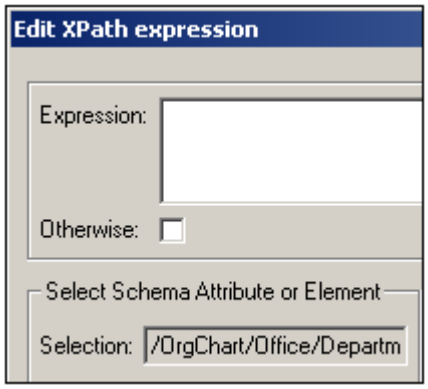


Notice that in the Select Schema Attribute or Element window, the `First` element is highlighted in gray. This indicates that for the XPath expression you are creating, the context node is the `First` element.

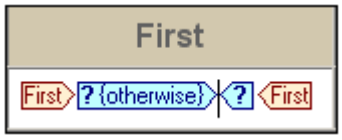
6. Double-click the `Shares` element to insert it into the Expression field. Then select the > operator, and type in the value 0. Your XPath expression should be: `../Shares > 0`. Click OK to create the condition.
7. Make the `(contents)` placeholder bold. This means that if the condition is evaluated as true (i.e. if the content of `Shares` (which is a numeric field) is a number greater than 0), then the content of `First` will be displayed in bold. The `First` element in the Design Document should now look like this:

Check the Authentic Preview. Notice that Frank Further has 0 shares, and his `First` name is not displayed in the table. This is because you have defined processing in the event that the condition is true, but no processing if the condition is false (as is the case with Frank Further since he has 0 shares). You therefore have to define a condition to process the element in the event that the condition is false.

8. To process the element's content when the above condition is false, you must define a condition that specifies all the other eventualities not defined in the above condition. Right-click the condition, and select **Condition | Add New**. The Edit XPath expression dialog appears.



9. Check the Otherwise box. This condition covers all events not covered by the previously defined condition. The `First` element in the Design Document now looks like this:



Notice that the conditional template is empty. This means that no processing has been defined for it, and, as a result, nothing will be displayed in the output.

10. Place the cursor between the start and end tags of the condition, right-click, and select **Insert | Contents**. The `(contents)` placeholder is inserted.
11. Select the `(contents)` placeholder, and set font-size to 10pt.

The Authentic and HTML Previews will look like this:

Administration (3)

First	Last	Title	Ext	EMail	Shares
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	1500
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	0
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	

The Authentic View will look as below.

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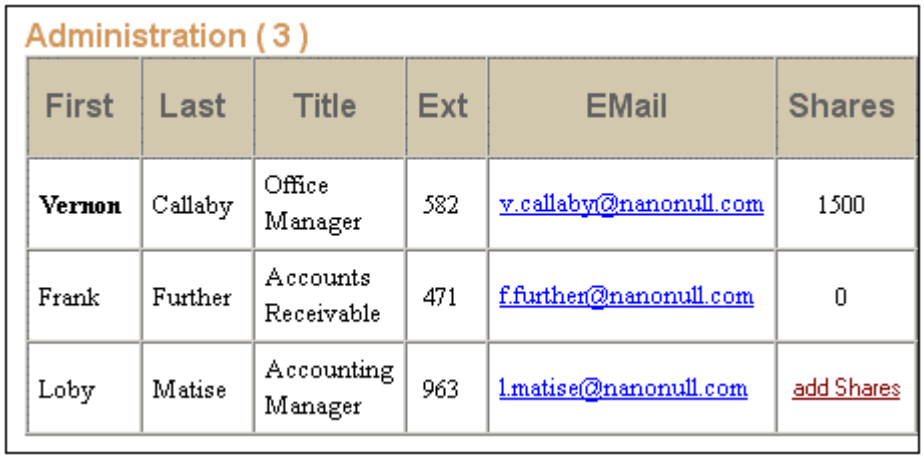


Administration (3)

First	Last	Title	Ext	EMail	Shares
Vernon	Callaby	Office Manager	582	v.callaby@nanonull.com	1500
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	0
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	add Shares

Notice in both the above figures, that the `First` element is displayed in normal font if the content of `Shares` is 0 or if no `Shares` element exists for that employee.

Now create the same conditions for the `Last` element so that both `First` and `Last` appear in bold if the employee is a shareholder and in normal if not.

Formatting the table
Since another column has been added, you need to change the column widths again to ensure proper PDF output. First, check the PDF Preview. Now set column widths for each column (by placing the cursor in the respective column, clicking the Table Properties icon, and in the Column tab of the Table Properties dialog entering a value for `width`) as follows: `First`: 10%; `Last`: 12%; `Title`: 16%; `Ext`: 5%; `EMail`: 23%; `Shares`: 10%; `LeaveTotal`: 8%; `LeaveUsed`: 8%; `LeaveLeft`: 8%.

4.11 Creating the Table Footer

A table footer can contain both static and dynamic content, and can therefore be used to display summaries of data in the table. You can also insert, append and delete footer rows, as well as split and join cells, thus allowing you considerable flexibility in designing footers.

In this section, we will create the following summaries for the `//Department/Person` dynamic table:

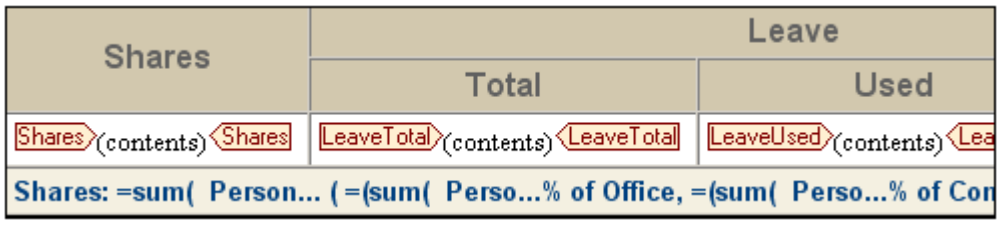
- Number of employees in the department, and this number as a percentage of Office employees and Company employees.
- Number of shares held by Department members, and this number as a percentage of shares held by Office shareholders and Company shareholders.
- A list of all non-shareholders in the department.

Before starting, delete the summary auto-calculation in the footer of the Extensions column, which sums up the telephone extension numbers of employees. This summary was created when the table was created because you checked the Summary for Numeric Fields checkbox and because the `PhoneExt` element is defined as an integer datatype. To delete the summary auto-calculation, click it, and press Delete.

Note that, when the cursor is in the footer, the context node is `//Department`.

Summarizing the shares in departments

1. Place the cursor in the Shares column footer, and click (or **Table | Join Cell Right**) thrice in order to combine these cells into one cell.
2. Type in "Shares: ".
3. Insert an Auto-Calculation to sum the number of shares held by department employees. The XPath expression will be: `sum(Person/Shares)`.
4. Insert an Auto-Calculation to sum the number of shares held by department employees as a percentage of shares held by all shareholders in that office. The XPath expression will be: `round((sum(Person/Shares)) div (sum(../Department/Person/Shares)) * 100)`. The `round()` function is used to round off the result of the Auto-Calculation.
5. Insert an Auto-Calculation to sum the number of shares held by department employees as a percentage of shares held by all shareholders in the whole company. The XPath expression will be: `round((sum(Person/Shares)) div (sum(../../Office/Department/Person/Shares)) * 100)`.
6. Insert text so that your output reads: `Shares: X ( Y% of Office; Z% of Company )`, where `X`, `Y`, and `Z` are the Auto-Calculations you have created.
7. Format the entire footer text suitably. The Design Document will look like this:



The Authentic and HTML Previews will look like this:

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Shares	Leave		
	Total	Used	Left
1500	25	4	21
0	22	2	20
	25	7	18
Shares: 1500 (12% of Office, 4% of Company)			

Summarizing the employees in departments

1. Place the cursor in the footer of the `First` column, and click (or **Table | Join Cell Right**) four times in order to combine these cells into one cell.
2. Type in "Employees: ".
3. Insert an Auto-Calculation to count the number of department employees. The XPath expression will be: `count(Person)`.
4. Insert an Auto-Calculation to count the number of department employees as a percentage of employees in that office. The XPath expression will be: `round((count(Person)) div (count(../Department/ Person)) * 100)`. The `round()` function is used to round off the result of the Auto-Calculation.
5. Insert an Auto-Calculation to count the number of department employees as a percentage of employees in the whole company. The XPath expression will be: `round((count(Person)) div (count(../../Office/Department/ Person)) * 100)`.
6. Insert text so that your output reads: `Employees: X ( Y% of Office; Z% of Company )`, where X, Y, and Z are the Auto-Calculations you have created.
7. Format the entire footer text suitably. The Authentic and HTML Previews will look like this:

Administration

First	Last	Title
Vernon	**Callaby**	Office Manager
Frank	Further	Accounts Receivable
Loby	Matise	Accounting Manager
Employees: 3 (20% of Office, 8% of Company)		

Listing the non-shareholders by department

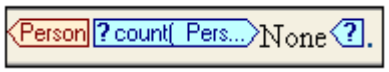
1. Place the cursor in the Employees column of the footer, and click (or **Table | Append Row**). The appended footer row has two cells just like the first row.
2. Place the cursor in the first cell, and click (or **Table | Join Cell Right**) to join the two cells.
3. Type in "Non-Shareholders: ".
4. Drag the `Person` element into the footer as shown below:

5. Insert a Condition after the start tag of the `Person` element. The XPath expression should select those `Person` elements (the current element) that have a `Share` value of less than or equal to 0, or no `Share` element. The XPath will be: `Shares <= 0 or not (Shares)`. This part of the footer in the Design Document will look like this:

6. Delete the `(contents)` placeholder of the `Person` element.
7. Drag the `First` element into the Design Window, and drop it between the tags of the condition you created in the previous step, and create it as contents.
8. Do the same for the `Last` element. This part of the footer row will now look like this:

9. We now want to put commas after each non-shareholder except the last in the list. To do this, place the cursor after the end tag of the `Last` element, and insert a condition. The XPath should be: `following-sibling::Person[Shares<=0 or not(Shares)]`. The XPath location axis is `following-sibling`, which checks the following siblings of the current `Person` element. The condition searches for following-sibling `Person` elements which contain either `Share` child elements with values equal to or less than `0`, or which contain no `Shares` child element.
10. Insert a comma and a space. This puts a comma and space in the output if the condition is evaluated as true. If not evaluated as true, the conditional template is skipped. Then put a period after the `Person` end tag. This causes a period to be inserted after all the `Person` elements have been looped through. The Design Window of this part of the footer will look like this:

11. You still have to make allowance for the event that there are no non-shareholders in a department (i.e. all department employees are shareholders). To cover this eventuality, place the cursor before the period, and insert a condition. The XPath should be: `count(Person) = count(Person[Shares>0])`. Insert the text "None" between the tags of the condition, as shown below.



12. Format the entire footer row text suitably.
13. Save the STYLEVISION Power Stylesheet, and refresh the Authentic View of the Working XML File.

The Authentic View of the dynamic table with the footer modifications will look like this:

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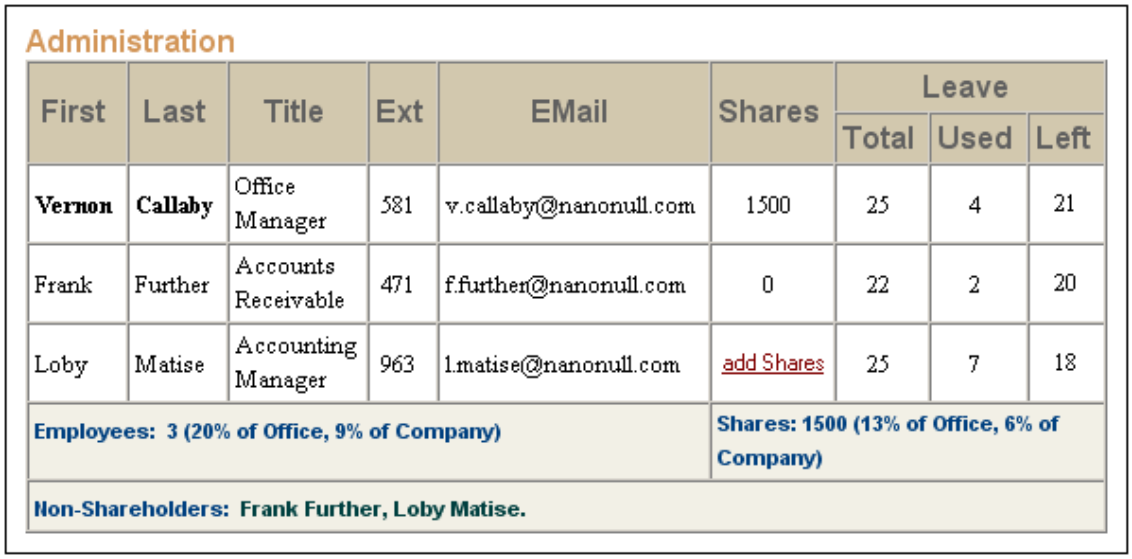


Administration

First	Last	Title	Ext	EMail	Shares	Leave		
						Total	Used	Left
Vernon	**Callaby**	Office Manager	581	v.callaby@nanonull.com	1500	25	4	21
Frank	Further	Accounts Receivable	471	f.further@nanonull.com	0	22	2	20
Loby	Matise	Accounting Manager	963	l.matise@nanonull.com	add Shares	25	7	18
Employees: 3 (20% of Office, 9% of Company)					**Shares: 1500 (13% of Office, 6% of Company)**			
Non-Shareholders: Frank Further, Loby Matise.								

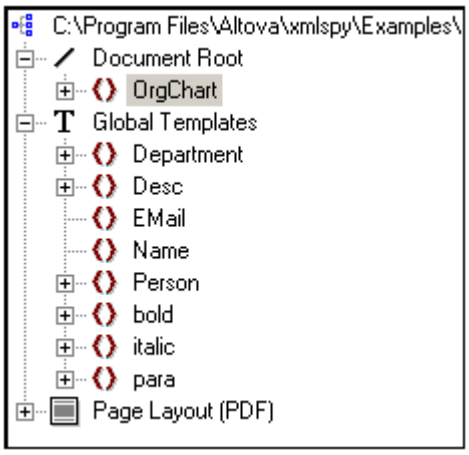
4.12 Text formatting with global templates and text state icons

The schema `NanonullOrg.xsd` contains two **elements** that are intended for applying text styling. These two elements are `bold` and `italic`; they are child elements of `para` and are recursive with respect to themselves and each other, i.e. they can occur multiple times within themselves and each other.

The `bold` and `italic` elements can occur at any location and at multiple locations within a `para` element. Since their location cannot be precisely fixed in the Design Document, the formatting for these two elements must be specified in a global template.

Creating a global template for the `bold` element

1. In the Schema Window, expand the Global Templates entry. A tree showing all the elements for which global templates are allowed is displayed.



2. Select the `bold` element. The `bold` element in the Global Templates tree is marked with a "+" to indicate that a global template has been created. In the Design Window, the view changes to show the `bold` element, which has a `(contents)` placeholder (see below).

3. Note that the entire element is selected. Keeping the element selected, in the Text Style Window, select the Text tab, and set `font-weight` to bold. The global template is now created with bold formatting. Alternatively, you could select the `(contents)` placeholder and assign the bold formatting.

4. Now check the HTML Preview. All text in `para` elements that is marked up with the `bold` element is now displayed in bold. (Such text was earlier not displayed bold because there was no formatting defined for the `bold` element.)

Creating a Text State Icon

A Text State Icon is a toolbar icon in Authentic View that is used to add formatting to text in Authentic View. A text state icon is created for **a particular element** in STYLEVISION. The

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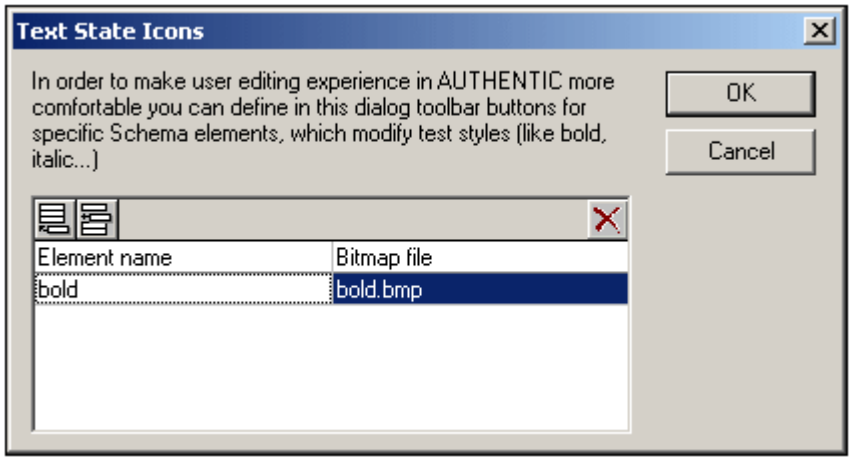
formatting for that element must be defined as a global template, and it is this formatting that is applied when the Authentic View user clicks the text state icon.

Create a text state icon for the `bold` element as follows:

1. Click **Authentic | Text State Icons...**. The Text State Icons dialog appears:


Text State Icons
In order to make user editing experience in AUTHENTIC more comfortable you can define in this dialog toolbar buttons for specific Schema elements, which modify test styles (like bold, italic...)
OK
Cancel
Element name
Bitmap file
bold
bold.bmp

2. Enter `bold` as the element name for which the text state icon is being created.
3. Enter `bold.bmp` as the name of the bitmap file in the `sps\Picts` folder in your application folder. This bitmap will be used as the toolbar icon in Authentic View. It is already present in the `sps\Picts` folder, so you do not have to create the bitmap.
4. Now append a row, and add the `italic` element and `italic.bmp` as the bitmap file for the italic icon (also present in the `sps\Picts` folder).
5. Save the STYLEVISION Power Stylesheet.
6. If you have `NanonullOrg.xml` open in Authentic View, close it, and open it again to see the toolbar icons for bold and italic that you have created. (You cannot view these icons in Authentic Preview since Bold and Italic buttons already exist in the STYLEVISION toolbar; they apply to text formatting in the Design Window.)

   The text state icons are grayed out when you open the file. They will be enabled when you place the cursor inside a `para` element (because the `bold` and `italic` elements are child elements of `para`).
7. In Authentic View, now mark some text in a `para` element, and click the bold icon. The text turns bold.
8. Now mark some text, and click the italic icon. Nothing happens. This is because you have not yet defined a global template for the `italic` element in your STYLEVISION Power Stylesheet.
9. In the STYLEVISION Power Stylesheet, create a global template for the `italic` element, and assign it an italic style (in the Text Style Window).
10. Save the STYLEVISION Power Stylesheet. In Authentic View, refresh the view by switching to another view before switching back again. All text that has been marked up as italic will now be displayed as italic.

4.13 Using Additional Validation

The Additional Validation feature allows you to check data on the basis of XPath expressions and to draw the attention of the Authentic View user to values that are outside the range of values specified by the XPath expression. When an invalid value is entered or becomes the result of an auto-calculation, then the user is informed about this in two ways:

- On validating the document, a validation error is reported.
- Optionally, the value can be displayed in red and an error message will be displayed in a mouseover.

This feature is useful if you wish to inform users that certain values are not allowed and that appropriate action is required. Additional validation is also useful when the validity check you wish to make is not specified in the schema.

Additional validation of Telephone Extensions
The objective is to validate the content of the `PhoneExt` element, which is an integer datatype. The validation should check whether the extension has three digits or not. If not, the user should be notified.

To build additional validation for the `PhoneExt` element, do the following:

1. Select the `(contents)` placeholder of the `PhoneExt` element.
   - Selecting the `(contents)` placeholder—and not the entire node—is the mechanism to be used in order to display invalid data in red and display an error message when the user mouses over the invalid data. On validation **(F8)** also, an error message will be generated.
   - Selecting the entire node on the other hand only generates an error message on validation.

2. Select **Authentic | Node Settings...** The following dialog appears:

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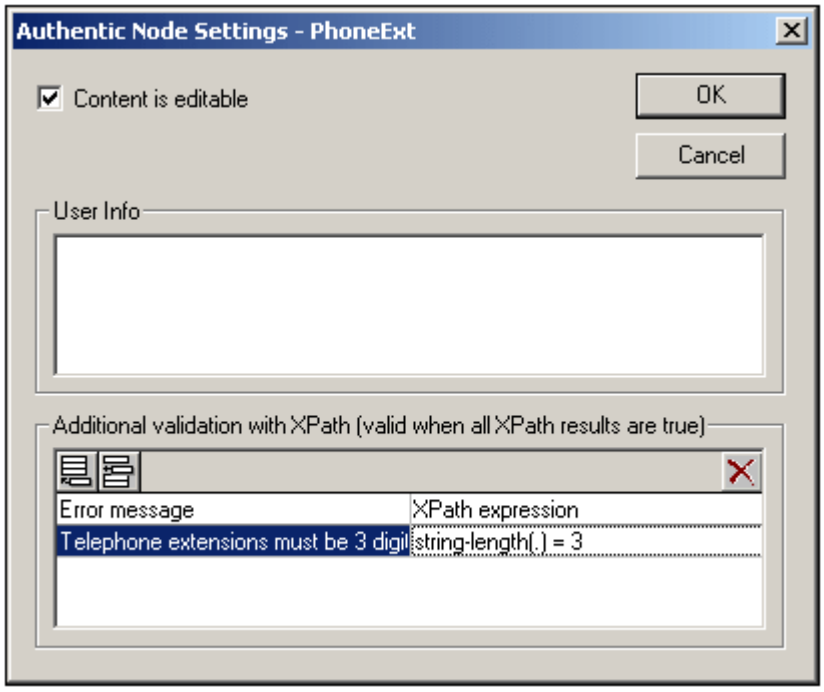


3. In the Additional Validation field, click the Append button.
4. Enter the XPath expression for valid values: `string-length(.)=3`. The . indicates the current node. When the number of characters in the current node (the `PhoneExt` node) is equal to 3, the XPath expression is true and the data is valid. The expression is false when the number of characters in the `PhoneExt` node is any other than 3. If this happens, the node content will be displayed red in Authentic View and a mouseover displays the error message that you key into the Error message box of the Additional Validation field.
5. Now enter the error message in the Error message box of the Additional Validation field, such as: "`Telephone extensions must be three digits long`."
6. You can also key in text for the User Info. The text you key in here is displayed in Authentic View shortly after the cursor is placed over that node.

When the Authentic View user validates the XML document, any invalid data will generate the error message for that node.

4.14 Completing the stylesheet

To complete the stylesheet, you should check the following:

- Whether Auto-Calculations, Conditional Templates, and Additional Validation statements are correct, especially whether all user situations are covered.
- Whether formatting and layout is as required.
- Whether the Authentic Node Settings for individual nodes are correctly set.

Checking Auto-Calculations, Conditional Templates, and Additional Validation
Two kinds of error are likely here: first, that the XPath expression is incorrect, either in syntax or because it selects the wrong node/nodeset or operates on the selected node/nodeset in an unintended way; second, that some data input scenario has not been covered. You should check all XPaths for correct syntax and correct processing, and then test your STYLEVISION Power Stylesheet with different data (to check that various data input scenarios are covered).

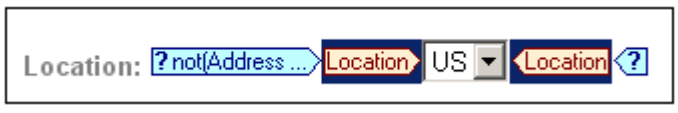
Your STYLEVISION Power Stylesheet is correct in the first respect, i.e. correctness of XPath expressions, if you have followed this tutorial exactly. There is, however, one significant data input scenario that has not been covered. This is as follows. Suppose the Authentic View user selects a value in the `Location` combo-box, say US, and then creates the `Address` element and enters data into the child elements of `Address`. Suppose now that the user (for whatever reason) changes the value in the `Location` combo-box to EU. The `add Address_EU` prompt appears, and the user does add the `Address_EU` element. The XML document now contains an `Address` element as well as an `Address_EU` element; this is invalid, since the schema specifies that either of the two, but not both, must be present.

To cover this data input scenario, you can take one of the following measures:

- Inform the Authentic View user about not adding a second address element in a pop-up message that appears on mousing over the `Location` combo-box. You can enter the message in the User Info field of the Authentic Node Settings for the `Location` node. This, however, does not prevent the user from going ahead and doing just what is not supposed to be done.
- Make the `Location` combo-box non-editable once an address element has been created for the Office, and explaining this to the user in a pop-up. This effectively rules out the possibility of two address elements occurring inside an `Office` element.

Additional specifications for how the `Location` combo-box is processed
The objective is to make the `Location` combo-box non-editable after the address element corresponding to the `Location` selection has been created. This prevents the possibility of a second address element being created. Do this as follows:

1. Select the `Location` element, and insert a condition around it with the XPath: `not(Address or Address_EU)`.

   This creates a conditional template for the scenario where neither an `Address` nor an `Address_EU` element exists for that `Office` element.
2. Right-click the `Location` node and select **Authentic Node Settings...** (or select **Authentic | Node Settings...**).

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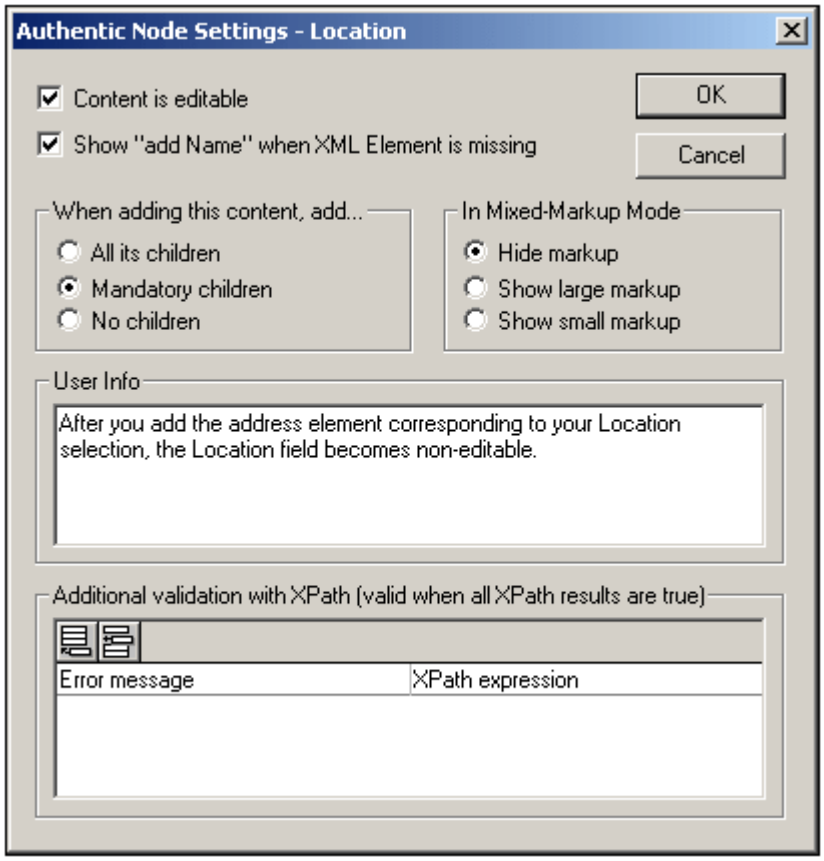

Authentic Node Settings - Location
Content is editable
Show "add Name" when XML Element is missing
OK
Cancel
When adding this content, add...
All its children
Mandatory children
No children
In Mixed-Markup Mode
Hide markup
Show large markup
Show small markup
User Info
After you add the address element corresponding to your Location selection, the Location field becomes non-editable.
Additional validation with XPath (valid when all XPath results are true)
Error message
XPath expression

In the dialog, leave the default settings unchanged. The most important of these in this context is the "Content is editable" checkbox. Remember that these settings are for the condition where neither `Address` nor `Address_EU` element exist; you do want the user to be able to add content to the `Location` element.

3. Add text in the User Info field as shown in the figure above, and click OK.
4. Right-click the condition and select Add Copy.
5. For the new conditional template, change the XPath to: `Address`. This is the conditional template to execute when an `Address` element exists.
6. Select the `Location` node in this conditional template, and in the Node Settings dialog uncheck the "Content is editable" checkbox and enter a suitable text message in the User Info field, such as: "To edit this field, the `Address` element of this `Office` element will have to be deleted using a Text View of the document."
7. Repeat Steps 4, 5 and 6 to create a third conditional template for cases where an `Address_EU` element exists.

Checking the document formatting

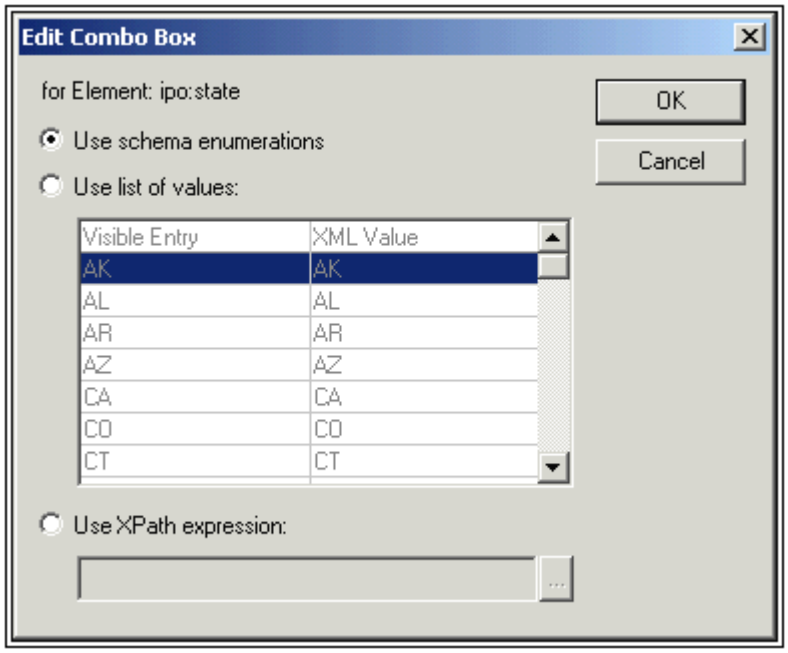
Compare the Authentic View, and HTML and PDF Previews, and make any desired formatting changes, such as adding or deleting line breaks, changing text color and background color, and so on.

In the static table that contains the US address fields, the last row contains two elements: `ipo:state` and `ipo:zip`. In order to make the input areas for the two elements easily recognizable to the Authentic View user, change the `ipo:state` and `ipo:zip` nodes to a Combo box and an Input Field, respectively.

To change the `ipo:state` element to a combo box, do the following:

1. Right-click the element in the Design Document and select **Change to | Combo Box...**.

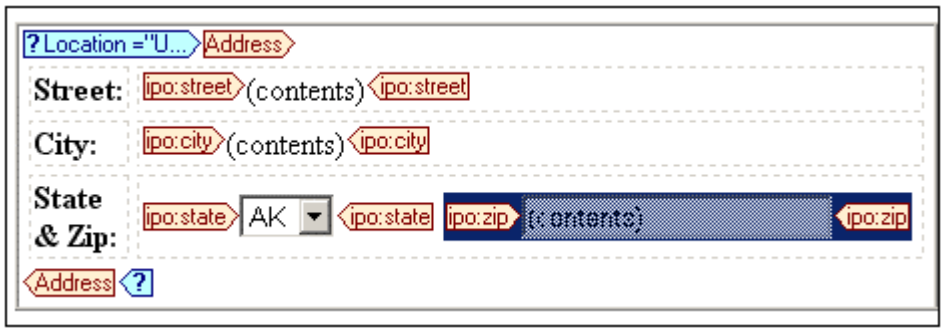
The following dialog pops up:



2. Check the Use Schema Enumerations option, so that the values enumerated in the schema become the options available in the combo box. The Visible Entries will be the same as the XML Values that have been enumerated in the schema.
3. Click OK to finish creating the combo box.

To change the `ipo:zip` element to an input field, right-click the `ipo:zip` element and select **Change to | Input Field**.

The Design Window, after these two changes have been made, should now look like this:



Checking the Node Settings
You can make detailed and specific settings for each node in your document (right-click the node and click **Authentic Node Settings...** (or select **Authentic | Node Settings...**)). For example, you might want to add User Info for some nodes; Authentic View users will see this information when they mouseover the node. The following screenshot shows how User Info is displayed in Authentic View.

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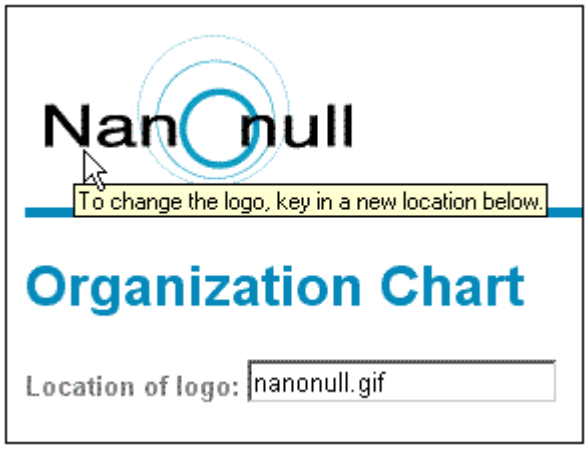

The pop-up message that appears on mousing over the logo is the text keyed in as the User Info for this node.

Additional modifications
Try the following modification yourself. In the Office Summary Line just below the address of each office, the number of departments and employees are listed, as shown here:

Modify the line so that the singular (department / employee) appears when the corresponding value is one, and the plural (departments / employees) appears when the corresponding value is zero or more than one. (This modification is included in `NanonullOrg.sps`, should you need to look it up.)

Chapter 5

How To Use

5 How To Use

This section describes how to use the more complex features of STYLEVISION. For each of the features considered, there is an explanation of the feature's function followed by a description of its usage.

The following features are discussed:

- Namespaces
- Global Templates
- Data-entry devices
- Lists
- Tables
- Auto-Calculations
- Conditional templates
- Date Picker
- Input Formatting
- Parameters
- PDF processing and page layout
- Databases in STYLEVISION
- STYLEVISION from the command line

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5.1 Namespaces

Namespaces with DTDs and XML Schemas
When using namespaces, it is important to know that:

- DTDs **are not** namespace aware
- XML Schemas **are** namespace aware

This means that in an XML document, according to the Namespace Recommendation, an element such as `altova:title` is the same as the element `title` if both belong to the same namespace. The prefix `altova:` is not a part of the element name, but is a reference to a namespace. However, since DTDs are not namespace aware, they recognize `altova:` as part of the element name. Consequently, a DTD would see `altova:title` and `title` as two different elements.

STYLEVISION does not support the use of namespaces in DTDs. If you wish to use namespaces with your documents, we recommend that you use XML Schemas.

Problems of namespaces in DTDs
If you wish to use a DTD to validate an XML document that uses namespaces, you would have to declare `xmlns` (with an optional prefix) as an attribute of the relevant element. For example:

```
<!ATTLIST userman xmlns:altova CDATA #FIXED
   "http://www.altova.com">
```

Further, elements must be declared in the DTD with the namespace prefix as part of the element name, as for example:

```
<!ELEMENT altova:title (#PCDATA)>
```

A valid XML document based on such a DTD would look something like this:

```
<altova:userman version="1.0" xmlns:altova="http://www.altova.com">
   <altova:title>Some Title</altova:title>
   ...
</altova:userman>
```

In such a DTD, you would have to define all elements and attributes with the namespace prefix as part of the name. This means that when you create an XML instance document you are committed to the prefix you use in the DTD. If you subsequently wish to change the prefix in the XML document then all the element and attribute declarations in your DTD would have to be modified. You could gain a little flexibility by using parameter entities, but, clearly, using a DTD to validate an XML document with namespaces is not an ideal strategy .

If you wish to use namespaces, it is best to base your STYLEVISION Power Stylesheet on an XML Schema.

In what follows the focus is on XML Schemas. The topics covered are:

- A general overview of namespaces in STYLEVISION
- How STYLEVISION handles a schema with a single namespace
- How STYLEVISION handles a schema that uses multiple namespaces

5.1.1 Namespaces and STYLEVISION

Target namespaces
If you wish to use a namespace with your XML document instance, a target namespace must be defined in the XML Schema. This is done with the `targetNamespace` attribute of the `schema` element. If the `targetNamespace` attribute is specified, then a namespace for the target namespace must also be defined for the schema.

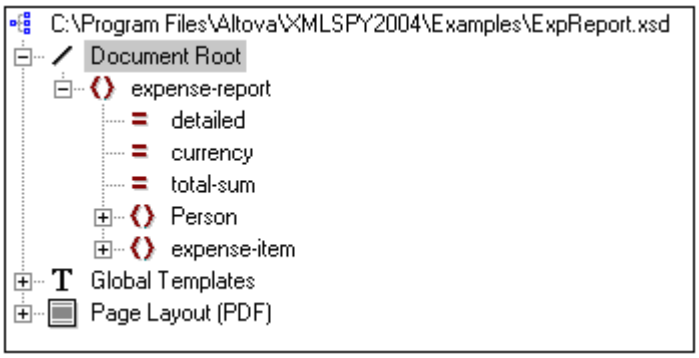
```
<xsd:schema targetNamespace="http://www.xmlspy.com/schemas/orgchart"
   xmlns:xsd="http://www.w3.org/2001/XMLSchema"
   xmlns:org="http://www.xmlspy.com/schemas/orgchart"
   elementFormDefault="qualified"
   attributeFormDefault="qualified">
```

The handling of namespace prefixes in STYLEVISION is therefore dependent on (i) whether a target namespace is defined, and (ii) whether the target namespace has been defined with a prefix (as in the example above) or as the default namespace. The handling of namespace prefixes in STYLEVISION is explained in detail in Schemas with a single namespace and Schemas with multiple namespaces.

Schemas with no target namespace
If you do not wish to use a namespace with your document instances, then the `targetNamespace` attribute is omitted in the schema. In these cases the document instance does not belong to any namespace, and the schema tree in STYLEVISION reflects this in that elements and attributes have no prefix.

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
   elementFormDefault="qualified"
   attributeFormDefault="qualified">
```

The schema tree in STYLEVISION for such a schema will have no namespace prefixes.



Qualifying elements and attributes
An element or attribute in the XML instance document is said to be qualified when its namespace prefix is exposed. Whether an element or attribute is qualified depends on the values of the `elementFormDefault` and `attributeFormDefault` attributes of the schema element, respectively, and, in the case of elements, whether the element is globally declared or not.

When the `elementFormDefault` and `attributeFormDefault` attributes have a value of `qualified`, then elements and attributes in the XML instance document must have their prefix exposed. When the value is `unqualified`, then only globally declared elements must have their prefix exposed. The effect of the values of the `elementFormDefault` and `attributeFormDefault` attributes on the handling of namespace prefixes in STYLEVISION is detailed in Schemas with a single namespace and Schemas with multiple namespaces.

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Note: The default values of the `elementFormDefault` and `attributeFormDefault` attributes are both `unqualified`. As a result, if these attributes are not specified, then they are taken to be present with a value of `unqualified`.

Importing schema modules
A schema would typically belong to a single namespace. Schema modules that belong to different namespaces can be combined by using the `xsd:import` element. Since each schema has its own `elementFormDefault` and `attributeFormDefault` attributes, mixed values across combined schemas can produce complex namespace prefixing in STYLEVISION. These rules are given in Schemas with multiple namespaces.

Namespace binding
When the XML instance document is created, it will be in the target namespace. The namespace declaration in the XML document can bind the target namespace to any prefix. It does not necessarily have to be the same binding as that used in the schema or STYLEVISION Power Stylesheet. What is important is that the namespace URI referenced by the namespaces in each document be the same. So, even though a namespace in the schema has a prefix of `doc:` in the schema, the STYLEVISION Power Stylesheet, and the generated XSLT stylesheets for HTML and XSL-FO, and the same namespace has a prefix of `org:` in the XML instance document, the XML instance file is valid and will transform correctly with the stylesheets.

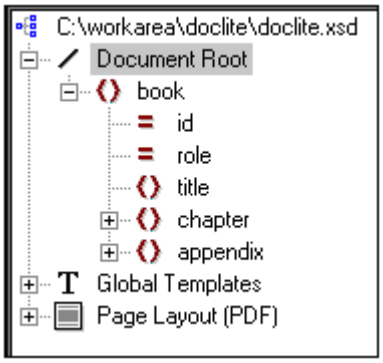
If you are creating an STYLEVISION Power Stylesheet for use with Authentic View, we recommend that you create a Template XML File that uses the same prefixes as those used in the schema and STYLEVISION Power Stylesheet. This would ensure that an XML file based on your STYLEVISION Power Stylesheet will have the same namespace prefixes as your schema and STYLEVISION Power Stylesheet.

5.1.2 Schemas with a single namespace

Target namespace is default namespace of the schema and all nodes are qualified
When a target namespace is specified in the schema, then the XML instance document belongs to this namespace. In the schema fragment shown below, a target namespace is specified, and the same namespace is defined as the default namespace of the schema document (that is, the namespace is defined without a prefix). Note also that `elementFormDefault` and `attributeFormDefault` are set to `qualified`.

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
   targetNamespace="http://www.altova.com/workarea/doclite"
   xmlns="http://www.altova.com/workarea/doclite"
   elementFormDefault="qualified"
   attributeFormDefault="qualified">
```

The schema tree in STYLEVISION for such a schema—which specifies that elements must be qualified—will have no namespace prefixes. This is because the target namespace is the default namespace (which has no prefix). The same will also be the case if `attributeFormDefault` is set to `unqualified`. For the handling of namespace prefixing when `elementFormDefault` is set to `unqualified`, see below.



Note:

- If both `elementFormDefault` and `attributeFormDefault` are set to `qualified`, attributes will not be prefixed.
- In the XML instance document, however, qualified attributes must explicitly specify a namespace prefix even if they are in the default namespace. This is because the specification does not provide a mechanism for defaulting the namespaces of attributes. So, if attributes have to be qualified, you should define a prefix for the namespace instead of using a default namespace.

Target namespace is defined with a prefix in the schema and all nodes are qualified
In this schema example, a target namespace is specified, and the same namespace is defined with a prefix `doc:` in the schema document. Note also that `elementFormDefault` and `attributeFormDefault` are set to `qualified`.

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
   targetNamespace="http://www.altova.com/workarea/doclite"
   xmlns:doc="http://www.altova.com/workarea/doclite"
   elementFormDefault="qualified"
   attributeFormDefault="qualified">
```

The schema tree in STYLEVISION for this schema will have all elements and attributes prefixed with `doc:` since the `elementFormDefault` and `attributeFormDefault` are set to `qualified`. If `attributeFormDefault` is set to `unqualified`., then the prefix will be hidden for attributes. For the handling of namespace prefixing when `elementFormDefault` is set to `unqualified`, see below.

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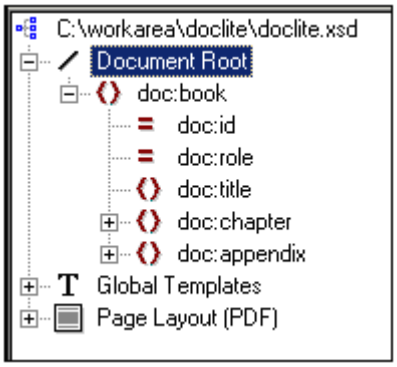
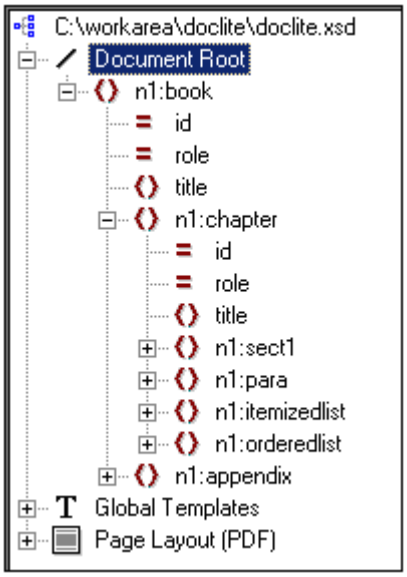


Target namespace is default namespace of the schema and all nodes are unqualified
When the target namespace is the default namespace of the schema document and `elementFormDefault` is set to unqualified, then the prefix is exposed for global elements but is hidden for other elements. Note that, in this example, `elementFormDefault` and `attributeFormDefault` are set to `unqualified`.

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
   targetNamespace="http://www.altova.com/workarea/doclite"
   xmlns="http://www.altova.com/workarea/doclite"
   elementFormDefault="unqualified"
   attributeFormDefault="unqualified">
```

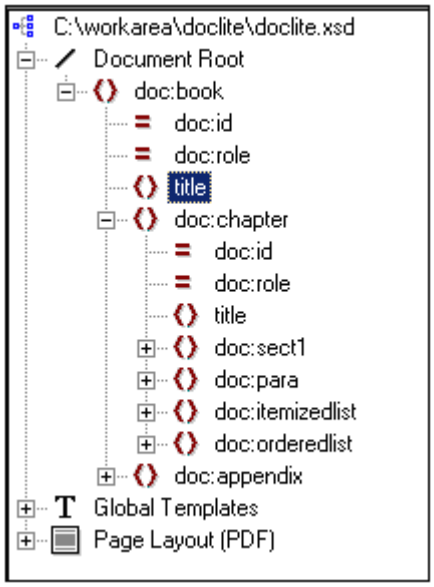
Since the target namespace is defined as the default namespace of the schema—that is, no prefix is defined for it—STYLEVISION assigns an arbitrary namespace prefix `n1:` to the namespace (required because the prefix has to be exposed for global elements). This prefix is exposed on the global elements (all elements except `title`). If `attributeFormDefault` is set to `unqualified`, as is the case above, then the namespace prefix (`n1:`) is hidden on all attributes. If `attributeFormDefault` is set to `qualified`, then the namespace prefix (`n1:`) is exposed on attributes



Target namespace is defined with a prefix in the schema and elements are unqualified
When `elementFormDefault` is set to unqualified and the target namespace is bound to a prefix (in this case `doc:`), then the prefix is exposed for global elements but is hidden for other elements.

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
   targetNamespace="http://www.altova.com/workarea/doclite"
   xmlns:doc="http://www.altova.com/workarea/doclite"
   elementFormDefault="unqualified"
   attributeFormDefault="qualified">
```

Notice that `attributeFormDefault` is set to `qualified`. As a result, all global elements and all attributes have the `doc:` prefix. Only the `title` elements, which are not global (that is, they are declared locally) have their prefixes hidden.



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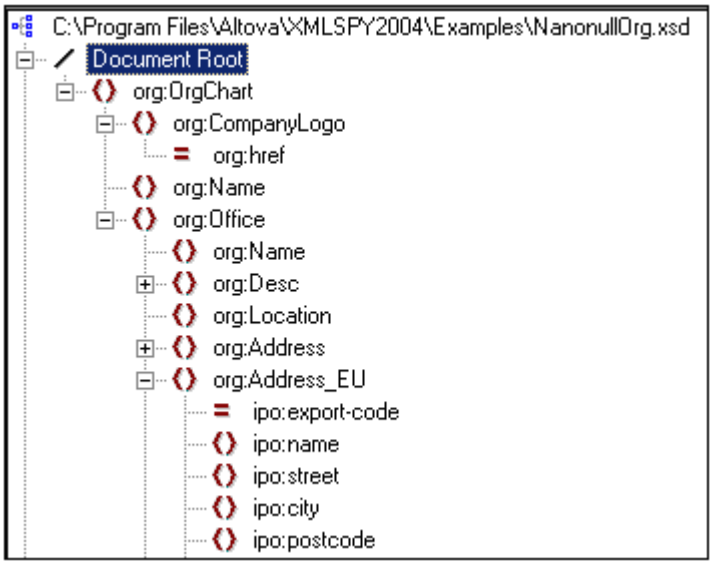
5.1.3 Schemas with multiple namespaces

Schema modules that belong to different namespaces can be combined by using the `xsd:import` element.

```
<xsd:schema targetNamespace="http://www.xmlspy.com/schemas/orgchart"
   xmlns:xsd="http://www.w3.org/2001/XMLSchema"
   xmlns:org="http://www.xmlspy.com/schemas/orgchart"
   xmlns:ipo="http://www.altova.com/IPO"
   elementFormDefault="qualified"
   attributeFormDefault="qualified">
   <xsd:import namespace="http://www.altova.com/IPO"
schemaLocation="address.xsd"/>
```

If the imported schema also has its `elementFormDefault` and `attributeFormDefault` set to qualified, all namespace prefixes are exposed, as shown below.



Important: The `elementFormDefault` and `attributeFormDefault` attributes apply to the schema they are in. The values of these attributes in an importing schema **do not** override the values of these attributes in an imported schema. Note also that the default value of these two attributes is `unqualified`.

Namespacing prefixing with combined schemas
Since each schema has its own `elementFormDefault` and `attributeFormDefault` attributes, mixed values across the various schemas can produce complex namespace prefixing. The rules followed by STYLEVISION are given in the tables below. The tables below show how STYLEVISION displays the prefixes of elements and attributes from the main schema and the imported schema, respectively, according to:

- the values of the `elementFormDefault` and `attributeFormDefault` attributes of each; and
- whether the target namespace is set as the default namespace of the main schema or with a defined prefix.

Handling of element namespace prefixes
The following table gives STYLEVISION's handling of the namespace prefixes of elements. Note that Main Schema column describes the handling of Main Schema elements while the Imported Schema column describes the handling of Imported Schema elements. **EFD** stands for **`elementFormDefault`**, NS for Namespace.

elementFormDefault (EFD)

	Main Schema		Imported Schema	
	Target Namespace has Namespace Prefix	**Target Namespace is Default NS (no prefix)**	**EFD qualified**	**EFD unqualified**
Main Schema EFD qualified	Prefix of all elements exposed.	Prefix of all elements exposed; Target NS prefix is default (no prefix).	Prefix of all elements exposed.	Prefix of global elements exposed.
Main Schema EFD unqualified	Prefix of global elements exposed.	Prefixes of global elements exposed. Target Namespace prefix is `n1:`.	Prefix of all elements exposed.	Prefix of global elements exposed.

Handling of attribute namespace prefixes
The following table gives STYLEVISION's handling of the namespace prefixes of attributes. The EFD value of the Main Schema does not have an effect on the prefixing of attributes. Note that Main Schema column describes the handling of Main Schema attributes while the Imported Schema column describes the handling of Imported Schema attributes. **AFD** stands for **`attributeFormDefault`**, NS for Namespace.

attributeFormDefault (AFD)

	Main Schema		Imported Schema	
	Target Namespace has Namespace Prefix	**Target Namespace is Default NS (no prefix)**	**AFD qualified**	**AFD unqualified**
Main Schema AFD qualified	Prefix of all attributes exposed.	Prefix of all attributes is `n1:`.	Prefix of all attributes exposed.	Prefix of all attributes hidden.
Main Schema AFD unqualified	Prefix of all attributes hidden.	Prefix of all attributes hidden.	Prefix of all attributes exposed.	Prefix of all attributes hidden.

Note: If the Target Namespace is the default namespace and EFD is qualified, when AFD is qualified, attributes will not be prefixed.

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5.2 Global Templates

Function
The Design Document consists of a **Root Template** and one or more optional global templates.

The Root Template defines the structure of the output document. For example, it could specify the following sequence:

- Name of company
- Company address and contact details
- List of products
- Board of directors

An alternative sequence could specify the board of directors before the list of products. Each item in the Root Template is defined by means of a **local template**. What is important to note is that the Root Template determines the structure of the entire output document from beginning to end.

Additionally, **global templates** can be defined for certain elements. If the Root Template invokes the global template of an element at some point during its processing, then the rules of this global template are processed at that point, after which the processor returns to processing the rest of the Root Template. An extreme case of the use of global templates is when the Root Template does not specify any structure but only that templates be applied to children of the Root Element. In such a case, elements are processed in the source XML document order, with global templates being applied if these exist; otherwise **default templates** are used. The default templates output element content. In such a case the structure of the output document follows the structure of the source XML document. This is in direct contrast to cases where the structure of the output document is specified explicitly with the Root Template.

Global templates can be created for individual element types, and they define the processing of elements with that name wherever they occur in the XML document. For example, you could create a global template for the element `para`. The advantage of using a global template for `para` would be that you define in one place the same processing rules for all `para` elements in the XML document. When the XML is processed, all `para` elements (whether they occur in `chapter`, `section`, `appendix` or `footnote`) will be processed according to the rules defined in the global template for `para`. You can also build variations for different `para` elements by using conditional templates within the global template. Thus, you can make a condition so that a `para` in a `footnote` has text that is two points smaller in size than text of other `para` elements.

When to use global templates and local templates
If you use only global templates, the processor will run through the XML document, and for each element that it encounters that has a global template, it will process that element accordingly. So it will follow the XML document structure. This is generally fine if your XML is a text document like an article, because the structure of the output document will generally correspond to the XML document structure.

Since the Root Template specifies the structure of the output document, you should use the Root Template (and local templates within it) if you wish to:

- Produce an output with a structure that is different from the XML document structure (for example output an Appendix before the Chapters)
- Insert overarching external components in the output (for example, a table that includes content from various parts of the XML document)

In some cases, using a global template is the only way to process an element. Global templates can—and, in some cases, must—be used in the following situations:

- For elements that can occur at multiple locations in various parts of the document, and where the locations cannot be known to you, the designer of the document, a global template **must** be used. An example of such an element is one marking up italic or bold text. (You cannot know where such elements will occur in the text; therefore, a global template for each such element must be used.)
- If an element can occur recursively, i.e. within itself or a descendant, then a global template **must** be used. An example is a numbered list, an item of which may itself contain a numbered list.
- For an element type that occurs as a child of different parents (for example, `//office/email` and `//person/email`), using a global template ensures that both `//email` elements are processed in the same way—if, that is, you want to process them in the same way. The advantage of using a global template in this kind of scenario is that the processing for several elements of a single element type is defined in a single global template; a change in the global template will therefore apply to all the elements that use this global template.

Very often, it is best to use a combination of both the Root Template (for control of structure) and global templates (for universal application of certain rules). What you use depends entirely on the output you want from your XML. Note that STYLEVISION allows you to apply global templates within the Root Template. So you can define a default formatting in a global template and then use it or override it in the Root Template.

General mechanism

- A local template defines the processing of one particular element in the Root Template.
- A global template defines the processing of an element type. For example, a global template can be created for the element type `title`, and this global template could then be used for any `title` element in the document (e.g. `//book/title`, `//chapter/title`, `//section/title`, etc).
- You can build variations in the global template by using conditional templates for particular elements (for example, `//book/title` could be given a different text color).
- If an element used in the Root Template has a global template defined for it, either the local template or the global template can be used.
- If an element only has a global template defined, then, in order for the template to be processed and produce output, it must be "reached". It is reached if there are other (local or global) templates that specify processing for each element in the hierarchy, starting from the root element and reaching down to this element.

Elements for which Global Templates are allowed to be created
When a schema is loaded into STYLEVISION, a single Global Templates entry is created in the Schema Window. This entry contains all the elements for which global template rules are allowed.

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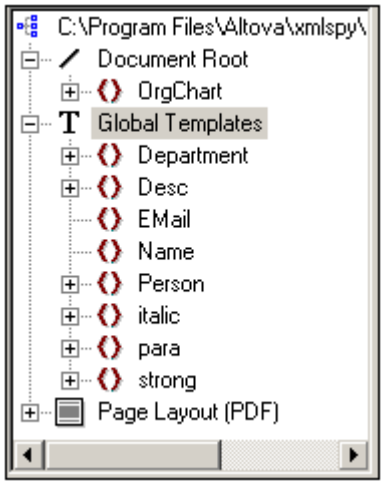


Elements that appear in the Global Templates list are:

- All elements named in element declarations in a DTD
- All elements declared as global elements in an XML Schema, i.e. elements declared as children of the `xs:schema` element.

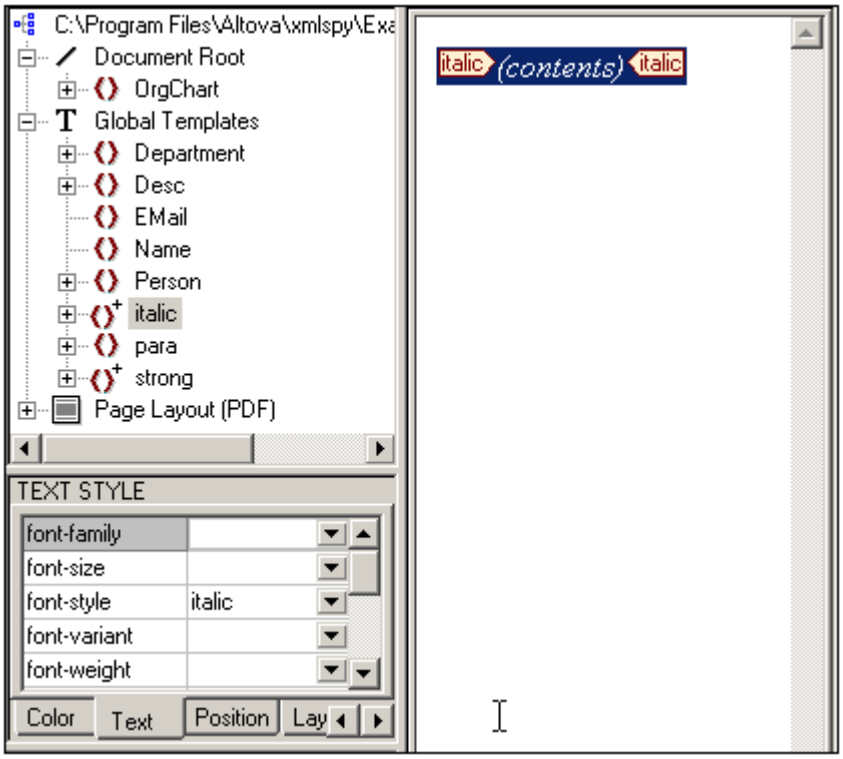
Creating Global Templates
Global templates can be created in either of two ways.

1. By clicking an entry in the Global Templates list and defining properties for it. Clicking an element listed under Global Templates will create an *empty* global template for that element. An empty global template has only the `<apply-templates />` rule specified but no other template rule; that is, it will process child elements but not do anything else (such as format text).
2. By right-clicking an item in the Design window, and selecting Make Global Template. A global template is created for that element type *from the local template* (that is, the global template will be created with the properties of the local template); the local template is deleted; and the global template is used for that element. Note that the Make Global Template command is displayed in the context menu only for those elements that are listed in the Global Templates list.

Whenever a global template is created (empty or not), a "+" sign appears to the left of the element's name in the "Global Templates" list (see figure below). Note that a global template can be created only for the global element itself—not for the descendants that are displayed when the global element is expanded.

After a global template is created, it will not automatically be used for an element in the Design Document—unless it has been created from a local template. The use of the global template for an element in the Design Document must be explicitly specified. This is described in the section "Using Global Templates" below.

Defining properties for Global Templates
To add formatting properties to an empty global template, key in values for the required text properties in the Text Style and/or Block Style windows. In the example below, the global template for the `<italic>` element has been assigned a font-style value of "italic".



In the example above, note that only the font-style property has been assigned a value. Other properties, such as font-family, font-size, and font-weight have not been assigned any value. For these properties, the values are inherited from the respective parent of each *instance* of `<italic>`. So if the parent of one instance of `<italic>` were `<para>`, and `<para>` had a font-size value of "11pt", then this instance of `<italic>` would inherit the font-size value of "11pt". If the parent of another instance of `<italic>` were `<email>`, and `<email>` had a font-size value of "10pt", then this instance of `<italic>` would inherit the font-size value of "10pt". Defining the global template for `<italic>` as above has the advantage that the `<italic>` markup changes only the font style (to italic) while the rest of the formatting is exactly the same as the surrounding text, no matter what the surrounding text. For example, an `<italic>` element contained within a `<bold>` element would inherit the font-weight value of "bold", thus producing text in bold italic.

Note: You can use any STYLEVISION feature in a global template, such tables, conditional templates, and auto-calculations.

Using Global Templates

Global templates are *created* in either of the two ways described in the section "Creating Global Templates" above. If you wish to use a global template with any element occurrence after it has been created, you have to specify this explicitly.

By default each occurrence of an element uses the local template. So, for example, if from the three occurrences of an `<email>` element: `//company/address/email` and `//employee/office/email` and `//employee/home/email`, you wish to use the global template with the two occurrences: `//employee/office/email` and `//employee/home/email`, then you have to specify that these two occurrences should use the global template.

There are two ways to specify that a given element occurrence should use a Global Template:

1. If a global template exists for a given element name, and an element with that name is

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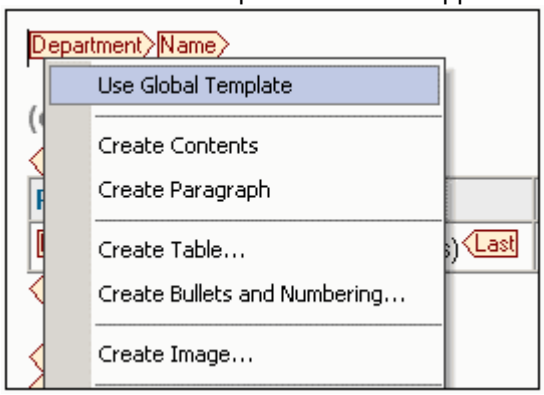
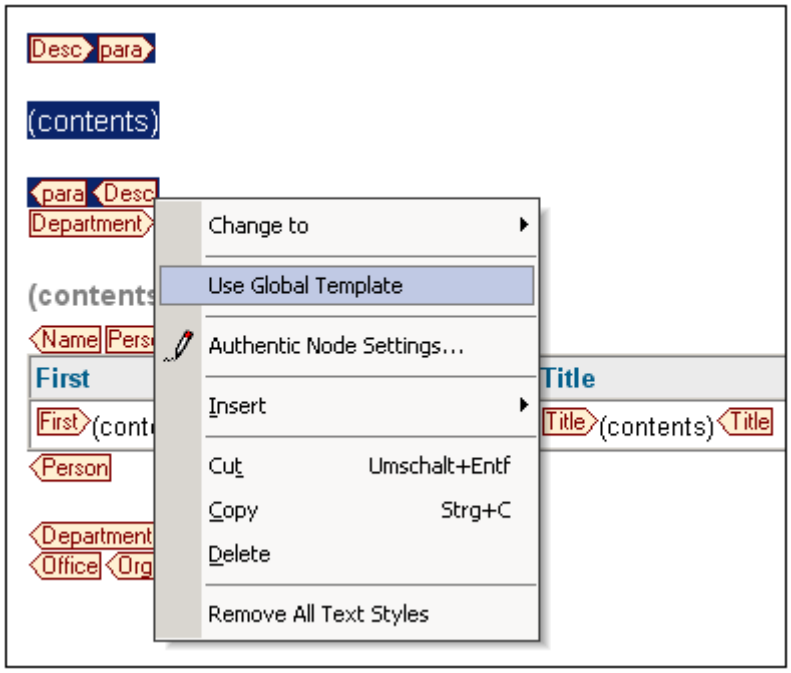
then dragged from the Schema window, then on dropping the element into the Design window a menu (shown below) pops up. In the figure below, the <Desc> element, for which a global template exists, has been dragged to a location just before the Department tag (location shown by cursor). Since a global template exists for <Desc>, the Use Global Template command appears in the pop-up menu.



Clicking Use Global Template, creates this element occurrence (<Desc>, in the example above) at that location using the global template properties. The element tags will be gray, indicating that the element uses the global template.

2. If the element occurrence already exists, right-click the element in the Design window, and click "Use Global Template". In the figure below, the <Desc> element has been right-clicked. Since a global template exists for <Desc>, the Use Global Template command appears in the context menu.



The local template will be deleted, and the global template will be used. The element tags turn gray, indicating that the element uses the global template.

Creating dynamic tables in global templates

You can also create dynamic tables in global templates. You do this in the same way you create dynamic tables in the Root Template. The important point to note is that, in a global template, a dynamic table can only be created for **descendant elements** of the global template node; it cannot be created for the global template node itself. For example, if you wish to create a

dynamic table for the element `authors` within a global template, then this dynamic table must be created within the global template of the parent element of `authors`. It cannot be created within the global template of the `authors` element.

Copying Global Template properties to a Local Template
When an element uses a global template, no local template exists. You can, however, create a local template from the global template. This is useful when you have a global template for an element and wish, for example, to change the formatting for a majority of element occurrences but retain the current global template properties for a few element occurrences. In such a case, you would copy the global template to local templates wherever required, and then make the change in the global template.

To copy a global template to a local template, in the Design window, right-click the element that uses the global template (the element tags will be gray), and click "Copy Global Template Locally". The global template is copied as the local template for the element, and the newly created local template is applied. The element tags turn from gray to beige, indicating that the local template is being used. The global template remains unchanged; it can be used for other occurrences of that element type.

Editing a Global Template
To change the formatting properties of a global template, do the following:

1. Select the Design window tab.
2. In the Schema Window, from the list of Global Templates, click the global template you wish to edit.
3. Enter the required values in the Text Style and/or Block Style windows.

The changes in the global template will be applied to all the element occurrences that use this particular global template.

Removing a Global Template
To remove a global template, do the following:

1. Select the Design window tab.
2. In the Schema Window, from the list of Global Templates, right-click the global template you wish to remove.
3. Select "Remove Global Template".

This removes the global template.

Caution: Use this command with care since it not only removes the global template but also removes *any element type occurrence that is currently using this global template*. If you wish to not have these element occurrences deleted, then ensure that you switch these occurrences to use a local template before you remove the global template.

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5.3 Data-entry devices

Function
STYLEVISION enables you to add data-entry devices into a STYLEVISION Power Stylesheet. In Authentic View, when data is entered into a data-entry device, it is inserted into the XML document as element content or as an attribute's value. Data-entry devices enable you to constrain the data that goes into the XML document, and are, therefore, a useful way of improving data integrity.

General mechanism
Given below is a list of data-entry devices you can use, together with an explanation of how data is entered in the XML file for each device.

Data-Entry Device	Data in XML File
Input Field (Text Box)	Text entered by user
Multiline Input Field	Text entered by user
Combo box	User selection mapped to value
Check box	User selection mapped to value
Radio button	User selection mapped to value
Button	User selection mapped to value

The values entered in the text input fields are entered directly as XML content.

For the other data-entry devices, the Authentic View user's selection is mapped to a value. STYLEVISION enables you to define the list of options the user will see and the XML value to which each option is mapped. Typically, you will define the options and their corresponding values in a dialog.

Usage
To create a data-entry device, do the following:

1. Drag a node from the Schema window into the Design Window and drop it at the desired location.
2. From the context menu that appears, select the data-entry device you wish to create the node as.
3. For some data-entry devices, a dialog pops up. In these cases, enter the required information in the dialog, and click OK.

To **reopen and edit** the properties of a data-entry device, right-click **the data-entry device** (not the node containing it), and select the menu option **Edit Properties.** Alternatively, click **Properties | Selected object...**.

Note:

- Data can be entered in data-entry devices only in Authentic View.
- Data-entry devices can also be created by changing the current component type of a node to a data-entry device. See Change to.
- In the HTML and PDF output, the visible entry that has been selected by the user is displayed in the output. Changing the value of a data-entry device in the HTML file does not change the text value in either the XML file or HTML file.
- In the case of some data-entry devices, such as check-boxes, where the device cannot

correctly be rendered in print, an alternative rendition is implemented.

See also: Context menus.

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5.3.1 Input fields

You can insert an Input Field or a Multiline Input Field in your STYLEVISION Power Stylesheet when you drop a node from the schema tree into the Design Window. The text that the Authentic View user enters into these fields is entered into the XML node for which the field was created.

Editing the dimensions of input fields
You can modify the dimensions of fields in two ways: by dragging the border/s of the field or entering a value in the Edit Properties dialog for the field (which you access by right-clicking the field (not the node) and selecting **Edit Properties...**). For Input Fields, the width can be modified (drag the right-border or, in the Edit Properties dialog, enter the number of characters the field should accommodate). For Multiline Input Fields, both width and height can be modified (drag the right or bottom border, or enter the required values in the Edit Properties dialog).

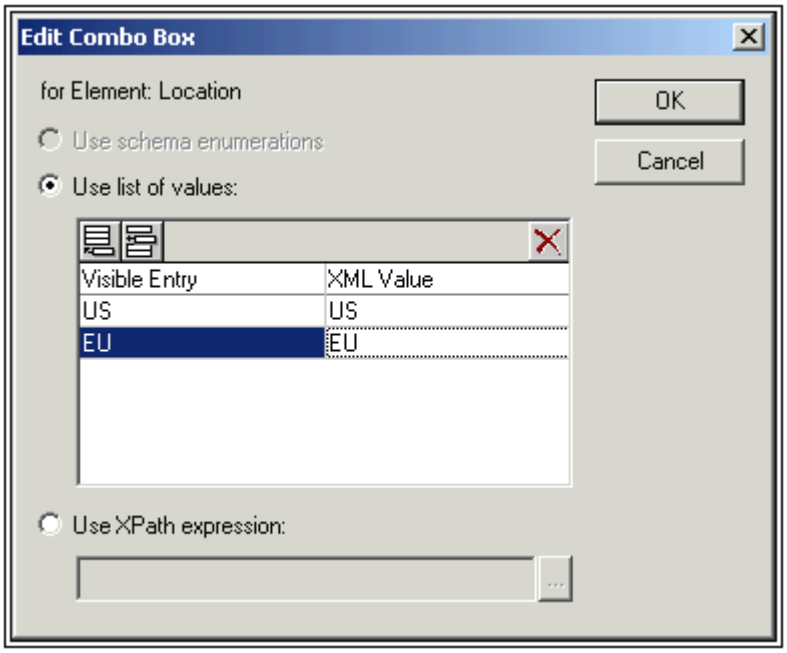
5.3.2 Combo boxes

A combo box presents the Authentic View user with a list of options in a drop-down list. The selected option is mapped to a value that is entered in the XML document. The mapping of drop-down list entry to XML value is specified in the STYLEVISION Power Stylesheet.

Mappings can be made in one of three ways:

- From the schema enumerations for the selected node. In this case, the visible entry (in the drop-down list) will be the same as the XML value.
- From a list defined in the Edit Combo Box dialog. You enter the visible entry and the corresponding XML value, which may be different.
- From a node-set in the XML document, which is selected with an XPath relative to the current node. The nodes in the selected nodeset are displayed as the entries of the drop-down list, and the list entry selected by the Authentic View user is entered as the value of the node.

The Edit Combo Box dialog is shown below.



To define the entries and values for the combo box, do the following:

1. Select the method with which you wish to define the entries and values by clicking the appropriate radio button.
2. If you select Schema Enumerations, the enumerations are entered in automatically. If you select Use List of Values, you can insert, append, edit, and delete any number of drop-down list entries with their corresponding XML values. If you wish to use a nodeset from the XML file, select Use XPath Expression, and enter or build an XPath to select the nodeset.
3. Click OK to finish.

Note

- Using XPath to select the items of the combo box drop-down list enables you to create combo boxes with dynamic entries from the XML file itself.
- To **reopen and edit** the properties of a data-entry device, right-click **the data-entry device** (not the node containing it), and select the menu option **Edit Properties.** Alternatively, click **Properties | Selected object...**.

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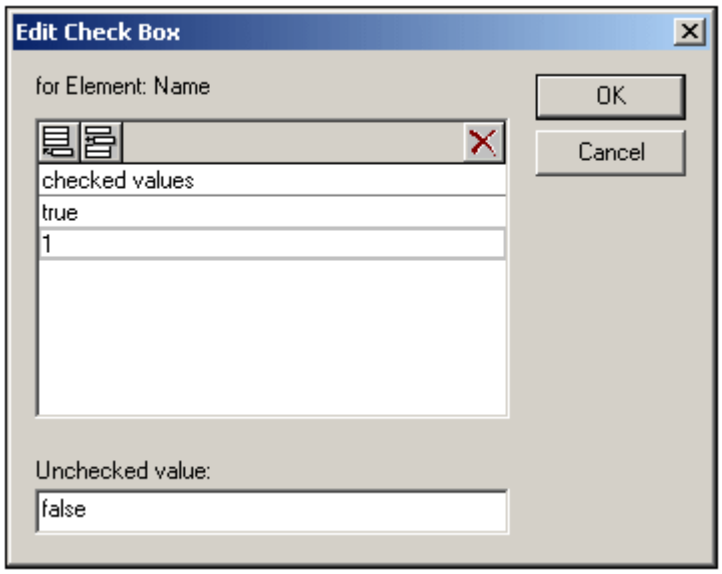
5.3.3 Check boxes

STYLEVISION Power StylesheetYou can create a check box as a data-entry device. This enables you to constrain user input to one of two choices. In the Edit Check Box dialog (shown below), you specify the XML values to map to the checked and unchecked events.



In the above screenshot, an element called `Name` has been created as a check box. If the Authentic View user checks the check box, a value of `true` will be entered as the value of the element `Name`. If the value is unchecked, then the value `false` is entered as the XML value of `Name` (as defined in the dialog).

To edit the properties of the check box, right-click the check box (not the node), and select **Edit Properties...** from the context menu that pops up.

Note: When a new `Name` (or check box) element is created in Authentic View, its XML value is empty (it is not the Unchecked Value). The Unchecked Value is entered only after the check box has first been checked, and then unchecked. To have a default value in a node, create a Template XML file that contains the default value.

5.3.4 Buttons

There are two types of button: radio buttons and buttons. Radio buttons allow the Authentic View user to enter data into the XML file. Buttons **do not allow** data-entry in Authentic View, but are useful for triggering events in the HTML output.

Radio buttons
Inserting radio buttons in the STYLEVISION Power Stylesheet allows you to give the user a choice among multiple alternatives. Each radio button you insert maps to one XML value. The way to use this feature is to create the node for which the data-entry is required multiple times as a radio button. For each radio button enter (i) some static text to indicate its value to the user, and (ii) a different XML value. The radio buttons for a node are mutually exclusive; only one may be selected at a time, and the associated XML value is entered as the value of the node.

Buttons
The button option allows you to insert a button and specify the text on the button. This is useful if you wish to associate scripts with button events in the generated HTML. Note, however, that a button does not map to any XML value and does not allow data entry in Authentic View.

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5.4 Lists

Function
If an element has multiple instances, to output its instances as the items of a list. A list can be bulletted or numbered. A list can be a static list or a dynamic list. Static lists (in which all list content comes from the STYLEVISION Power Stylesheet) are described first; the rest of the section is about dynamic lists (the content of which comes from the XML document).

Static lists
The content of a static list is contained entirely in the STYLEVISION Power Stylesheet. To create a static list, click **Insert | Bullets and Numbering**, or the Bullets icon or Numbering icon in the toolbar. This creates the first item of the list. Type in the content of the list item, and press enter to create a new list item. Static lists can be created for a single level. To change from bullets to numbering, click the Numbering icon; and vice versa.

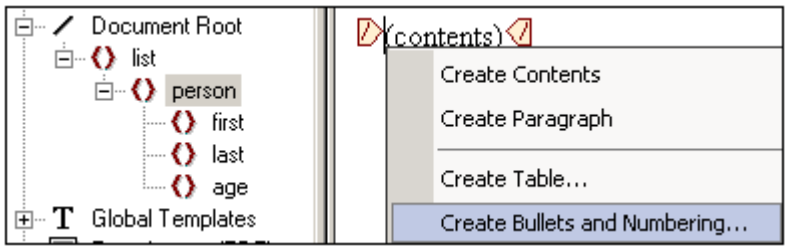
Dynamic lists
Dynamic lists display the content of a set of sibling nodes of the same name, with each node represented as a single list item in the list. The element, the instances of which are to appear as the list items of the list, is created as the list. The mechanism and usage are explained below.

General mechanism

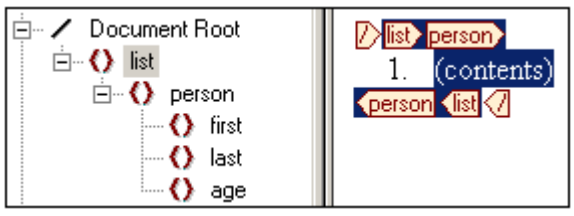
- Any element can be created as a list.
- When an element is created as a list, the instances of that element are created as the items of the list. For example, if in a `department` element, there are several `person` elements (i.e. instances), and you wanted to create a list of all the persons in the department, then you must create the `person` element as the list.
- Once the list has been created for the element, you can modify the appearance or content of the list or list item by inserting additional static or dynamic content such as text, Auto-Calculations, dynamic content, etc.

Usage: Basic

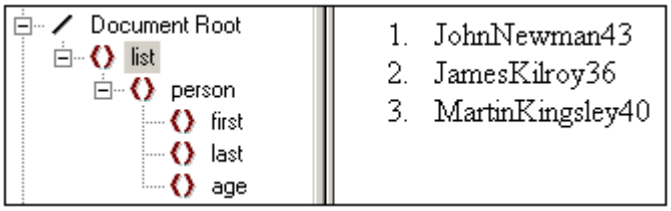
1. Create the required element as a list. In the example below, the element `person` is created as the list.



After you select the appropriate list formatting (bullets or numbering), this part of your Design Document will look like this:

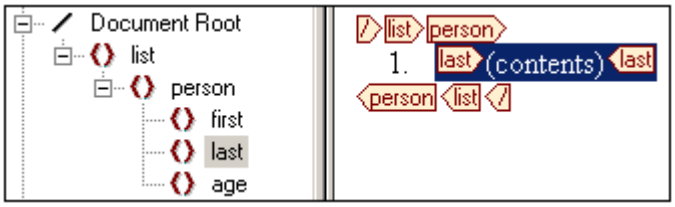


The Authentic and HTML Previews will look like this:

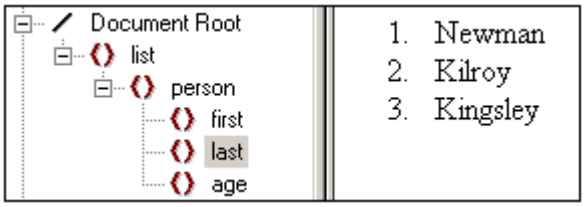


Notice that a list item has been created for each instance of the `person` element, and that the content of the **entire person element** (which includes content of all child elements) has been output.

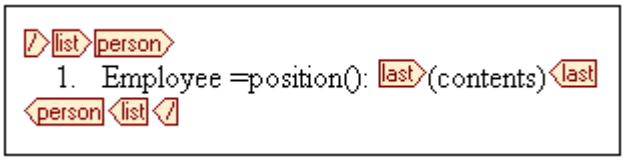
2. To modify the content of a list item, add new content or text after the list item marker. For instance, to list only the last name of persons, in the Design Document, drop the `last` element from the schema tree as contents into the list item. The contents of `//person/last` replaces the contents of the `person` element in the list item.



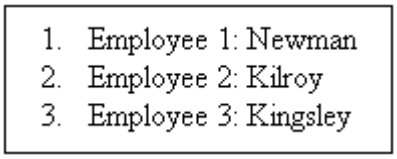
The Authentic and HTML Previews looks like this:



3. You could modify the list item further, as follows. Add the text shown in the illustration below. The equals to symbol indicates an Auto-Calculation; it returns the position of the current `person` element in the node-set.



The HTML Preview looks like this:



Usage: Advanced

The following issues, which are related to more complex list structures in schemas, are considered:

- Schemas often have separate elements for numbered lists and for bulletted lists. However, they usually have a common listitem-type element. An example is the HTML language, in which both the `ol` and `ul` elements have `li` as the listitem element. In this kind of scenario, it is best to define global templates for both the `ol` and `ul` elements,

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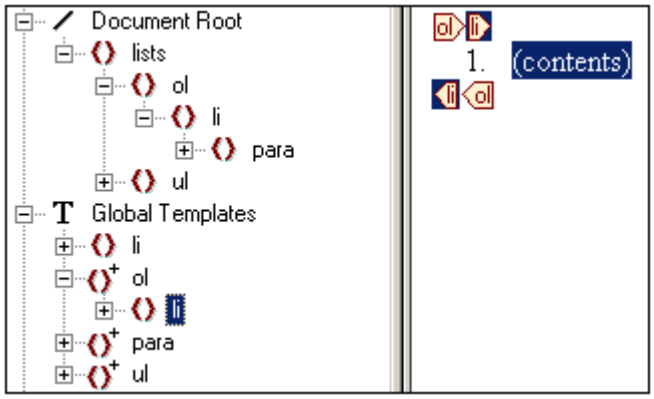
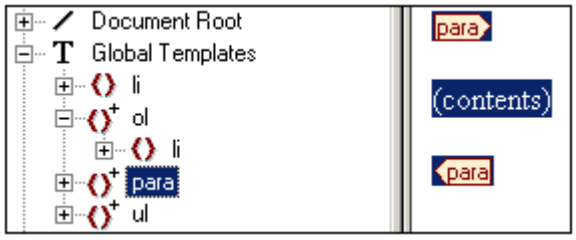
making sure to create the correct element as the list. Shown below is a view of the Design Document for the global template of an `ol`-type element.



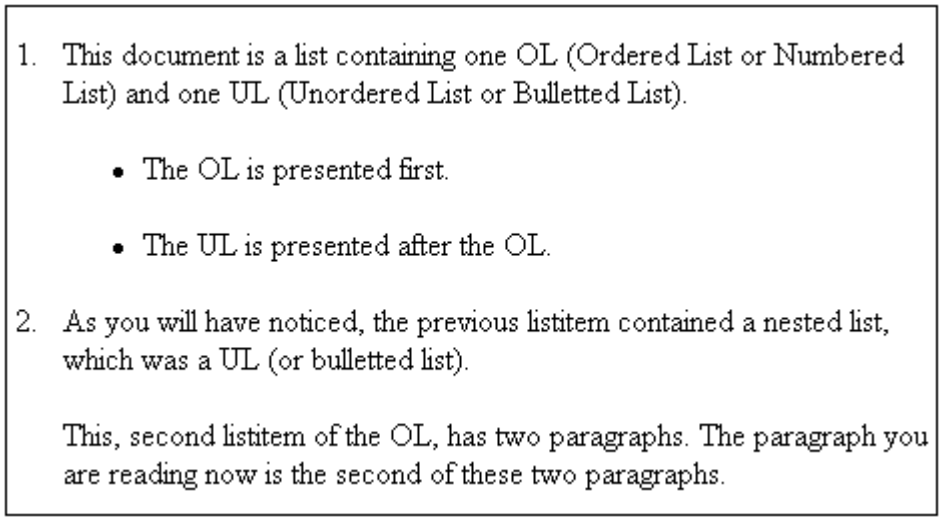
The `li` element was dragged from the content model of the `ol` element in the Global Templates list in the Schema Window, and was created as a numbered list. Similarly, create a global template for the `ul`-type element (but create the `li` element as a bulleted list in this case).

- The schema might have a `para`-type element as a child of the `li`-type element, and an `li`-type element may have more than one `para`-type element within it. The best way to deal with this kind of situation is to first define the `para`-type element as a global element in the XML Schema (this step is not necessary for DTDs). Then create a global template for the `para`-type element, making sure to create it as a paragraph. Shown below is a view of the Design Document for the global template of a `para`-type element.



If such a `para`-type element has been created as a block component, then pressing the Enter key in Authentic View causes another `para`-type element to be appended within the same listitem. Otherwise, pressing the Enter key causes another listitem to be appended.

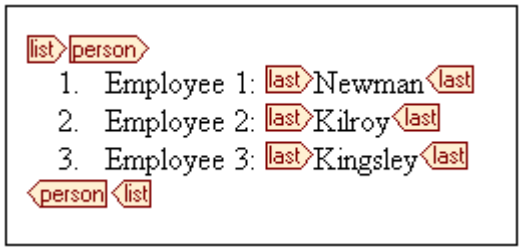
- If nested lists are allowed by the schema, you must define global templates for the list-type elements (`ol`, `ul`, etc), making sure to create the listitem-type element/s as lists. Given below is the HTML Preview of part of a list that includes nested lists.


1. This document is a list containing one OL (Ordered List or Numbered List) and one UL (Unordered List or Bulletted List).
• The OL is presented first.
• The UL is presented after the OL.
2. As you will have noticed, the previous listitem contained a nested list, which was a UL (or bulletted list).
This, second listitem of the OL, has two paragraphs. The paragraph you are reading now is the second of these two paragraphs.

- Note that in order to insert or append a listitem in Authentic View, the user must place the cursor in a listitem of the appropriate list. For example, if the cursor is in a listitem of a nested list, appending a listitem will append the listitem to this nested list. To append a listitem to the top-level list, the user must place the cursor in a listitem of the top-level list before appending a listitem.

Limitations

- In the Show Large Markup and Show Small Markup modes of Authentic View, the tags for listitem-type elements are not shown for the individual list items; instead only one pair of start and end tags is shown at the beginning and end of the entire list.



  In the figure above, only one pair of `person` tags occur—at the beginning and end of the list—when, in fact, there are three separate `person` elements (the listitems in this list).
- Only styles displayed in the Bullets and Numbering dialog are currently supported. User-defined bullets and numbering is currently not supported.
- For numbering nested lists so that list items have a form like `3.4.1`, there is no option for such a format you would like in the Bullets and Numbering dialog. To do this, you will have to use Auto-Calculations in a recursion mechanism. For details, see Numbering elements recursively.

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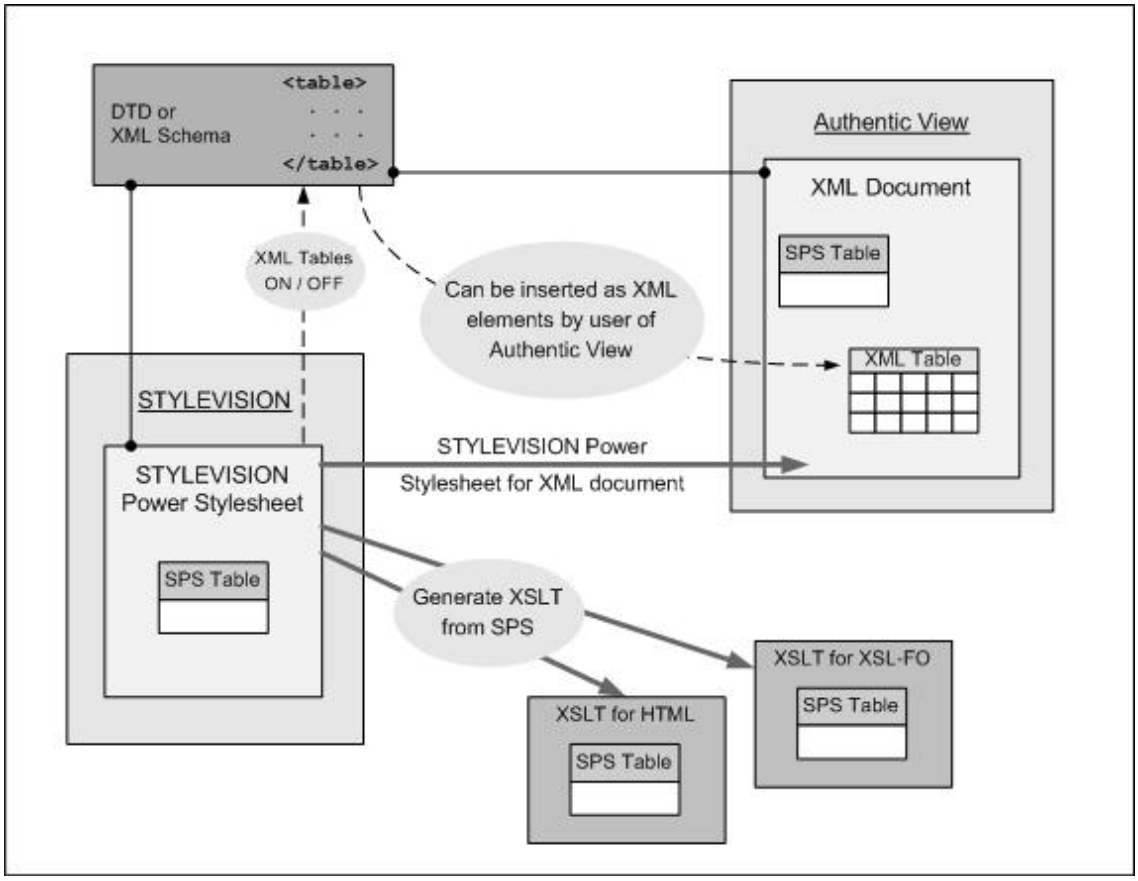
5.5 Tables

In a STYLEVISION Power Stylesheet, two types of tables are used: **SPS tables** and **XML tables**. There are crucial differences between the two types, and it is important to understand these. A detailed description of SPS tables and XML tables, and instructions about how to use them, follows in the next sections. For now, we look at the broad picture.

The illustration below shows the relationship of SPS tables and XML tables to the STYLEVISION Power Stylesheet and to the XML document.



SPS tables
An **SPS table** is a component of a STYLEVISION Power Stylesheet, and is created and formatted using STYLEVISION. If present in a STYLEVISION Power Stylesheet, an SPS table appears in Authentic View as well as in the XSLT stylesheets you can generate with STYLEVISION.

An SPS table has no pre-determined structure. The structure is specified by the person who designs the STYLEVISION Power Stylesheet. An SPS table can be created anywhere in a STYLEVISION Power Stylesheet, and any number of SPS tables can be created.

The **structure** of an SPS table is **not represented as XML elements** in the XML document. SPS tables are entirely presentational devices. In whatever kind of document an SPS table is rendered, the table's structure is specified not in the markup vocabulary of the XML document but in the respective presentational vocabulary. SPS tables occur in three types of output:

- Rendered in Authentic View; a vocabulary specific to Authentic View is used to mark up SPS tables

- In STYLEVISION-generated XSLT stylesheets for HTML output, SPS tables are marked up as HTML tables
- In STYLEVISION-generated XSLT stylesheets for XSL-FO output, SPS tables are marked up as XSL-FO tables

There are two types of SPS tables:

- **Static tables** are built up, step-by-step, by the person designing the STYLEVISION Power Stylesheet. After the table structure is created, the content of each cell is defined separately. The content of cells can come from random locations in the schema tree and even can be of different types. It is important to realize that the rows of a static table are not intended to represent a repeating data structure. This is why the table is said to be static: it has a fixed structure that does not change with the XML content.
- **Dynamic tables** are intended for data structures that repeat, and they are based on schema elements that have a substructure (at least one child attribute or element). Any element with a substructure repeats if there is more than one instance of it. Each instance of the element would be a row in the dynamic table, and all or some of its child elements or attributes would be the columns. In Authentic View, a dynamic table's structure reflects the content of the XML file and changes dynamically with the content.

XML tables
An XML table is created by the **Authentic View user** as a data structure in the XML document. The purpose of XML tables is to give the Authentic View user the option of inserting a table-type data structure in the XML document. This XML data structure can then be transformed to the table markup of the output format.

The data structure for an XML table must correspond to either the HTML or CALS table model. This XML table element and its content model must exist in the schema. An XML table can be inserted at any point in the XML document where it is allowed according to the schema. An XML table is formatted after it is inserted in the XML document.

Shown below is the Authentic View of an XML table that corresponds to the HTML table model.

Name	Phone
John Merrimack	6517890
Joe Concord	6402387

Data that is entered into the table's cells is entered as content of the corresponding XML elements. For example, the text view of the XML table shown in the illustration above looks like this:

```
<table border="1" width="40%">
  <tbody>
    <tr>
      <td>Name</td>
      <td>Phone</td>
    </tr>
    <tr>
      <td>John Merrimack</td>
      <td>6517890</td>
    </tr>
    <tr>
      <td>Joe Concord</td>
      <td>6402387</td>
    </tr>
  </tbody>
</table>
```

Note that the structure of the table exists as XML elements. An element in the XML table

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hierarchy can have any name; it is only important that the table structure correspond to the HTML or CALS table model. The elements of the XML table (from the example above) could as easily be:

```
<phonelist border="1" width="40%">
  <items>
    <person>
      <name>Name</name>
      <phone>Phone</phone>
    </person>
    <person>
      <name>John Merrimack</name>
      <phone>6517890</phone>
    </person>
    <person>
      <name>Joe Concord</name>
      <phone>6402387</phone>
    </person>
  </items>
</phonelist>
```

Also note the following:

- An XML table can be inserted at any location in the XML document where, according to the schema, a table is allowed.
- In Authentic View, data is entered directly into table cells. This data is stored as the content of the corresponding XML table element.
- The formatting properties of an XML table are assigned in Authentic View.

Note that XSLT stylesheets generated with STYLEVISION will not contain XML tables—because the XML tables are not included in the STYLEVISION Power Stylesheet.

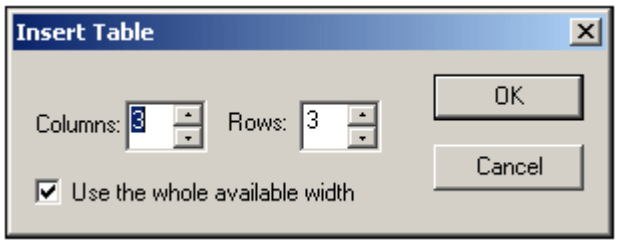
Summary for designer

From the document designer's perspective, the following points should be noted:

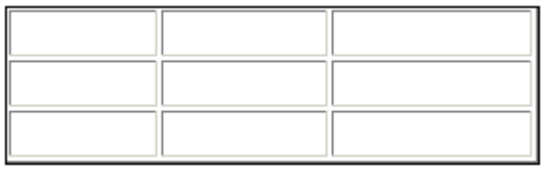
- An **SPS table** occurs in the XML document at a location determined by the designer of the document—not the user of Authentic View. The structure and formatting of SPS tables are specified by the designer of the STYLEVISION Power Stylesheet in STYLEVISION.
- The location, structure, and formatting of **XML tables** are specified by the user of Authentic View. The user may insert an XML table wherever this is allowed by the schema (remember: the table element corresponds to an element in the schema).

5.5.1 Creating static tables

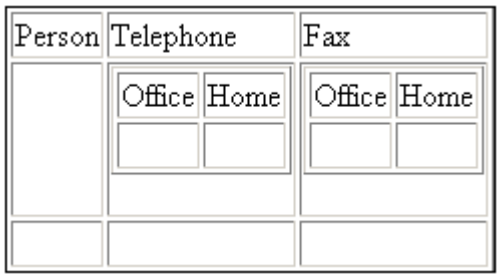
To insert a static table, click **Table | Insert table** or the icon. The following dialog appears:



You can select the dimensions of the table and specify whether the table should occupy the whole available width. When you click OK, an empty table with the specified dimensions, as shown below, is created.



You can now enter content into table cells using regular STYLEVISION features. Cell content could be text, or elements dragged from the XML tree, or objects such as images and nested tables. The figure below shows a table containing nested tables.



Static SPS tables are especially well-suited for organizing XML data that is randomly situated in the schema hierarchy.

Deleting columns, rows, and tables
To delete a column, row, or table, place the cursor in the column, row, or table to be deleted, and click the menu item **Table | Delete Column**, **Table | Delete Row**, or **Table | Delete Table**, respectively. If you have nested tables, the table immediately containing the cursor will be deleted when the **Table | Delete Table** command is used.

Toolbar table editing icons
The table editing icons in the second row of the toolbar are shortcuts to the **Table** menu commands. These commands allow you to insert, delete, edit the structure of, and assign formatting properties to the static table. These icons can also be used for dynamic tables. They **cannot be used for XML tables**, since XML tables cannot be created in STYLEVISION but must be created in Authentic View by the user. XML tables can only be enabled in STYLEVISION.

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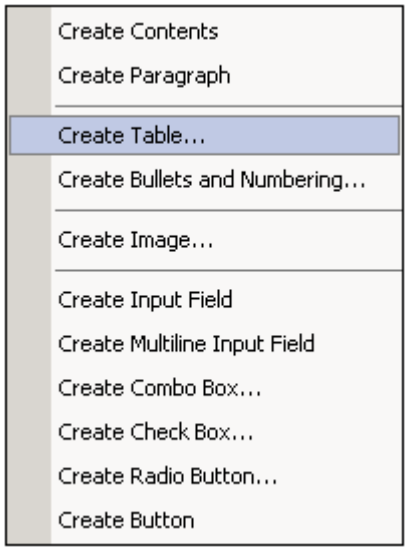
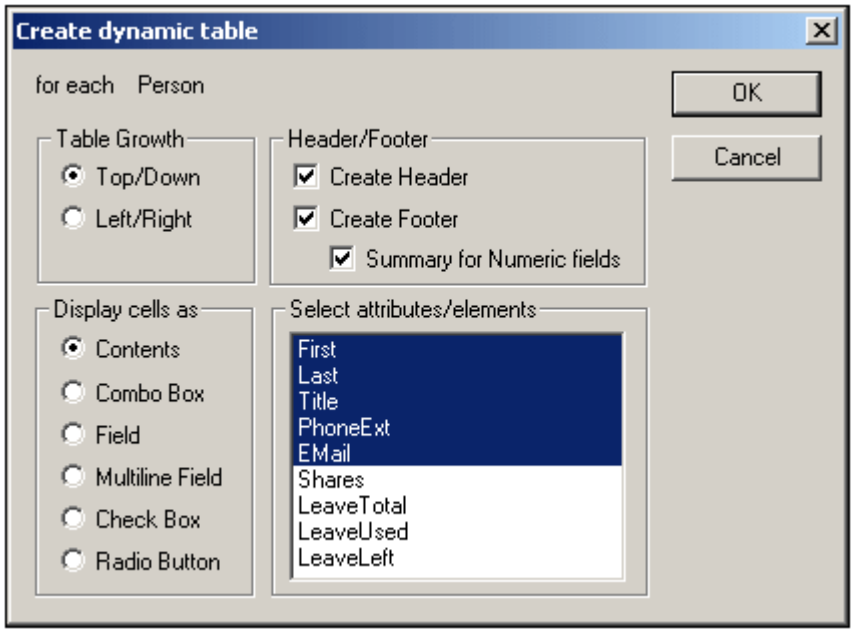
5.5.2 Creating dynamic tables

Creating a dynamic SPS table
A dynamic SPS table is created by dragging an element from the XML tree into the Design window. On dropping the element into the desired location, the following context menu appears.



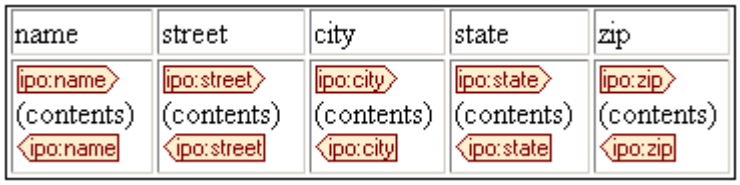
Click Create Table. This brings up the following dialog.



The child elements and attributes of the element that has been dragged into the Design window are displayed In the "Select attributes/element" list and can be created as columns of the table. Deselect the child nodes that you do not want and select any attribute/element you want to include as columns. (In the figure above, the elements `Shares`, `LeaveTotal`, `LeaveUsed` and `LeaveLeft` have been deselected.)

Note that columns are created only for child elements and attributes, but for no descendant on a lower level.

Table grows down or right
When a table grows top-down, this is what it would look like:



When a table grows left-right it looks like this:

Headers and footers
Columns can be given headers, which will be the names of the column elements. To include headers, check the Create Header check-box. To include footers, check the Create Footer check-box. Footers can only be created for tables that grow top-down. The footer of numeric columns will also sum each of these columns if the Summary for Numeric Fields check box is checked.

Header and footer cells can be joined and split, and rows can be inserted, appended, and deleted; this gives you considerable flexibility in structuring headers and footers. Additionally, headers and footers can contain any type of static or dynamic content, including conditional templates and auto-calculations.

Tables for elements with text content
To create columns (or rows) for child elements, the element being created as a table must have a **child element or attribute node**. Having a **child text node** does not work. If you are in the situation where you need to , create a child element called, say, `Text`, and put your text node in the `TableElement/Text` elements. Now you will be able to create `TableElement` as a dynamic table.

Contents of table body cells
When you create a dynamic table, you can create the node content as any one of a number of STYLEVISION components. In the examples above, the table body cells were created as contents. They could also be created as data-entry devices. There are two points to note here:

- The setting you select is a global setting for all the table body cells. If you wish to have an individual cell appear differently, edit the cell after you have created the table: right-click in the cell and, in the context menu that appears, select "Change to" and then the required cell content type.
- If you create cells as element contents, and if the element has descendant elements, then the content of the cell will be a concatenation of the text strings of the element and all its descendant elements.

Deleting columns, rows, and tables
To delete a column, row, or table, place the cursor in the column, row, or table to be deleted, and click the menu item **Table | Delete Column**, **Table | Delete Row**, or **Table | Delete Table**, respectively. If you have nested tables, the table immediately containing the cursor will be

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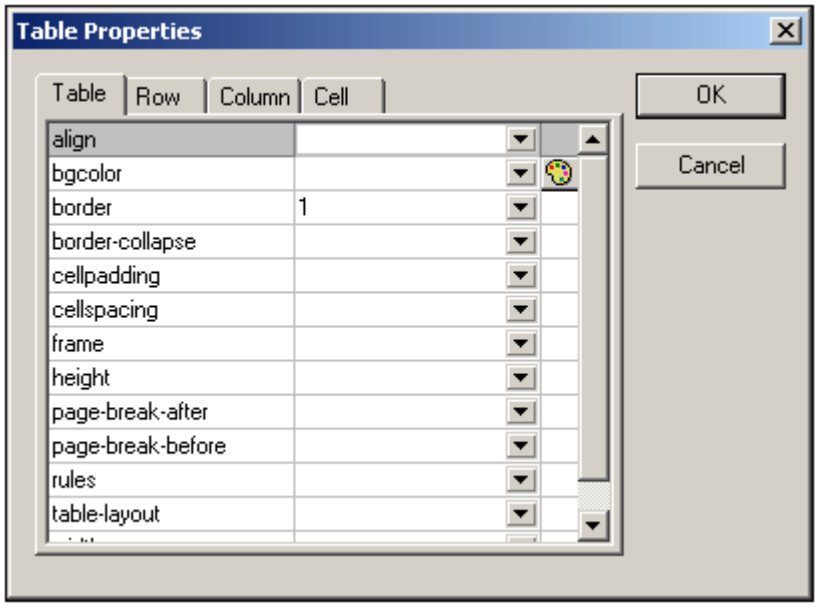
deleted when the **Table | Delete Table** command is used.

Toolbar table editing icons
The table editing icons in the second row of the toolbar are shortcuts to the **Table** menu commands. These commands allow you to insert, delete, edit the structure of, and assign formatting properties to the dynamic table. These icons can also be used for static tables. They **cannot be used for XML tables**, since XML tables cannot be created in STYLEVISION but must be created in Authentic View by the user. XML tables can only be enabled in STYLEVISION.

Creating dynamic tables in global templates
You can also create dynamic tables in global templates. The process works in the same way as for the Root Template (given above). The important point to note is that, in a global template, a dynamic table can only be created for **descendant elements** of the global template node; it cannot be created for the global template node itself. For example, if you wish to create a dynamic table for the element `authors` within a global template, then this dynamic table must be created within the global template of the parent element of `authors`. It cannot be created within the global template of the `authors` element.

5.5.3 Formatting static and dynamic tables

After they have been created, static and dynamic tables can be formatted to a high degree of detail and precision. The formatting mechanism is the same for both types of table. Formatting properties are available at the table, row, column, and cell levels. To assign formatting properties, place the cursor anywhere inside the table, row, column, or cell you wish to format, and click either **Table | Table Properties...** or **Properties | Table...** or the icon. The following dialog appears:



Click the required tab (Table, Row, Column, or Cell), enter a value for the formatting property you want to set, and click OK.

Cellpadding
The following points about cellpadding in tables should be noted:

- Cellpadding can be specified globally for all cells of the table in the Table Properties dialog.
- Cellpadding for individual cells can be specified by placing the cursor in the relevant cell and specifying padding (separately for each of the four components: left, top, right, and bottom) in the Layout tab of the Block Style window.
- A default cellpadding of 3pt is assigned to **each FO table cell**. This value can be overridden for all cells of the table by assigning a cellpadding value in the Table tab of the Table Properties dialog. To assign cellpadding values for individual cells, place the cursor in the relevant cell and specify padding (separately for each of the four components: left, top, right, and bottom) in the Layout tab of the Block Style window. Note that no default cellpadding is assigned to HTML table cells.

Additional cell formatting
In addition to the cell formatting available in the Table Properties dialog, additional properties are available in the Block Style Window. Place the cursor in the cell to be formatted and specify the value of the required property. For example, if you wish to put a right-border on a cell, place the cursor in the cell and, in the Layout tab of the Block Style Window, specify the color, style, and width for border-right.

Giving alternating rows different background colors
If you want alternating background colors for the rows of your dynamic table, do the following:

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1. Create two rows in your dynamic table, and give each row a different bgcolor (using the Table Properties dialog). The first row represents the odd-numbered rows, the second row the even-numbered rows.
2. In each cell of each row, fill in the contents. In most cases the processing for contents of both rows will be the same.

Note: You can create one row first, then append a second row, give the second row a different bgcolor, and copy the contents of each cell of the first row to the corresponding cell of the second row. Next you need the conditional templates that will put odd-numbered rows in the first row and even-numbered rows in the second row. This is Step 3 below.

3. Insert a condition for each cell, around the contents of the cell. Do this by right-clicking the node tags in the cell (or highlighting the content of the cell) and selecting **Insert | Condition**.
   For the odd-numbered rows the XPath will be: `position() mod 2 != 0`
   For the even-numbered rows, the XPath will be: `position() mod 2 = 0`

You can extend the above principle to provide even more complex formatting.

Numbering the rows of a dynamic table
You can number the rows of a dynamic table by using the `position()`function of XPath. To do this, first insert a column in the table to hold the numbers, then insert an Auto-Calculation in the cell of this column with an XPath of: `position()`. Since the context node is the element that corresponds to the row of the dynamic table, the `position()`function returns the position of each row element in the set of all row elements.

Table headers and footers in PDF output
If a table flows over on to more than one page, then the table header and footer appears on each page that contains the table. The following points should be noted:

- If the footer contains Auto-Calculations, the footer that appears at the end of the table segment on each page contains the Auto-Calculations for the whole table—not those for only the table segment on that page.
- The header and footer will not be turned off for individual pages (for example, if you want a footer only at the end of the table and not at the end of each page).

5.5.4 XML tables

In order for users of Authentic View to be able to insert XML tables the following two conditions must be fulfilled:

- An element must exist in the schema (DTD or XML Schema) with a content model corresponding either to the HTML or CALS table model
- XML tables must be enabled in the STYLEVISION Power Stylesheet

Defining the table content model in the schema
The `table` element in the schema must have a content model corresponding to either the HTML or the Exchange model subset of the CALS table model. The content model of the `table` element in your schema **must correspond exactly** with either of these two table models, i.e. all elements and attributes defined in the table model must be correspondingly present in the element content model. For information about the CALS table model, see the CALS table model at OASIS. For an example of a `table` element having an HTML table structure, see the HTML-OrgChart XML Schema in the Examples folder (`HTML-OrgChart.xsd`).

A table model corresponding to the HTML table model would have a structure as shown in the XML fragment below.

```
<table>
  <tbody>
    <tr>
      <td/>
    </tr>
  </tbody>
</table>
```

The element names in the example above are the default names you will find in the STYLEVISION Power Stylesheet. If the names of the table elements in your schema do not match these default names, you must map the names of the table elements in your schema to the default names in the Table Properties dialog of STYLEVISION. You can do this when you check the Enable XML tables option in the dialog. If there is more than one element in the schema that has a valid table content model, then the mapping to the default names determines which element will be used as the table element.

Caution: If an element called `table` exists in the schema, it will be treated as the XML table element if XML tables have been enabled in the STYLEVISION Power Stylesheet (because `table` is the default name for the table element in the STYLEVISION Power Stylesheet). This could lead to errors if the element `table` is not intended to be used as a table element.

Enabling XML tables with STYLEVISION
In order for the user of Authentic View to be able to create XML tables in an XML document, XML tables must be enabled in the STYLEVISION Power Stylesheet.

To enable XML tables, click **Authentic | CALS/HTML Tables...**. This pops up the CALS / HTML Table Properties dialog shown below.

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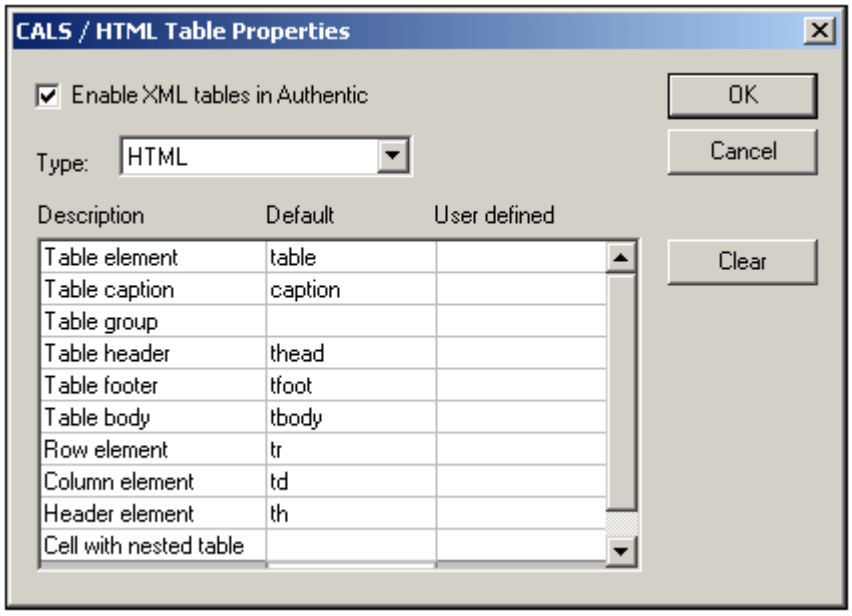
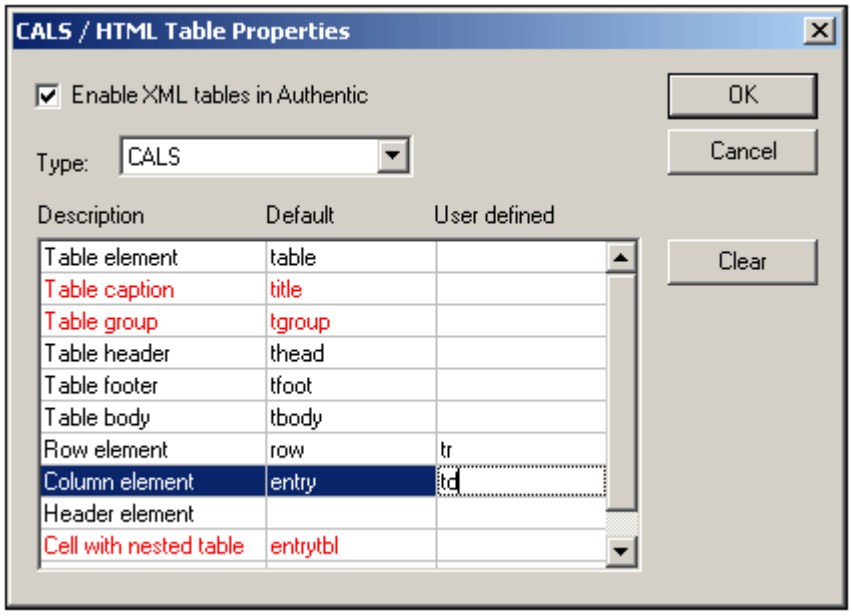


Now check the "Enable XML tables in Authentic" check-box.

Then select the table model type: either HTML or CALS. The screenshot above shows the default names for the HTML table model. If a default element name matches the corresponding table element name in your schema, then the default name is colored black, otherwise red. The screenshot above indicates the following about the schema:

- there is an element called `table` with a content model the same as the HTML table model (all default names appear black)
- all the default HTML elements exist in the content model of `table` (not one of the default names appears red)

The content model of a `table` element that follows the HTML model would not correspond with the CALS table model, which is different. Given below is a screenshot of the CALS / HTML Table Properties dialog (for the same schema as above) with the table model type set to CALS.



Notice the following:

- Four elements in the HTML content model are not present in the CALS table model (`caption, th, tr, td`). These elements do not appear as default elements in the dialog when the XML table type is switched to CALS.
- The default CALS table elements that do not exist in the schema are colored red. Those CALS table model elements that do exist in the `table` element's content model appear black.
- In the CALS table model, the default names of the row element and cell (or column) element are `row` and `entry`, respectively. If no mapping to schema elements is defined, then these element names are displayed in red. In the dialog, however, `row` and `entry` have been mapped to `tr` and `td`; this causes both the Default and User defined elements to be displayed in black.

If you wish to use the CALS table model, you should alter the schema to properly include the missing elements and attributes. Once you have selected the appropriate table model, click OK. XML tables are now ready to be used in Authentic View.

Note:
The following general points about XML tables should be noted:

- The `table` element can only be inserted at locations in the XML document where the schema allows the table element.
- You, as the person who designs the STYLEVISION Power Stylesheet, only enables XML tables. It is the Authentic View user who inserts an XML table at his or her discretion.
- An XML table is structured and formatted in Authentic View, that is, by the Authentic View user. The formatting of an XML table cannot be controlled through the STYLEVISION Power Stylesheet.
- In the CALS table model, the `cols` attribute of the Table group element (`tgroup`) specifies the number of columns in the table. This attribute–value pair is entered (both attribute and value) into the XML when the Authentic View user inserts an XML table. This is because the user must specify the number of columns when inserting the table is inserted. The value of this attribute changes automatically whenever a column is inserted, appended, or deleted using the GUI tools. The `cols` attribute is therefore not shown in the Attributes Entry Helper and its value, therefore, cannot be modified there.

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- Data entered in the cells of an XML table is entered as content of the `entry` element (in the case of a CALS table) or `td` element (HTML table), or corresponding user-defined element, as the case may be.
- To obtain the content of XML tables in HTML and PDF output, you must generate the XSLT (using a **File** menu command) and, in it, create a global template for the table element.

5.6 Auto-Calculations

Function
The Auto-Calculation feature (i) displays the result of an XPath evaluation at any desired location in the output document, and (ii) optionally updates a node in the XML document with the result of the XPath evaluation.

The Auto-Calculation feature is a useful mechanism for including:

- Calculations based on string or number operations on dynamic data
- Calculations based on the dynamic structure of the document (relative position of a node, etc)
- Inserting dynamic XML content at any location in the output document

Calculations based on string or number operations
The result of an XPath operation on dynamic node content can be displayed at any location in the document. The result can also be saved to an XML node if, in the Auto-Calculation dialog, you specify an XML node to update.

Calculations based on the dynamic structure of the document
Since an XPath expression can also operate on aspects of the document structure, the Auto-Calculation function can be used to display meta information about a dynamically changing document structure. For example, you can use it to count the number of `Person` elements in an `Office` element, and in this way obtain the total number of employees in an office. The result is dynamically updated as the number of `Person` elements changes. Or you can use the `position()` function of XPath to dynamically insert row numbers in a dynamic table.

Inserting dynamic XML content
You can use the Auto-Calculation function to insert content from any node in the document at another location, and to save this data to another node. The Auto-Calculation function is a useful way to display dynamic content of some node at another location. Note, however, that if a nodeset is selected by the XPath, only the content of the first node of the nodeset is displayed.

Usage
To insert an Auto-Calculation, do the following:

1. Place the cursor as an **insertion point** at the location where the Auto-Calculation result is to be displayed and click **Insert | Auto-Calculation**. In the submenu that appears, select Value if the result is to appear as plain text, Input Field if it is to appear within an input field (i.e. a text box), or Multiline Input Field if in a multiline text box.

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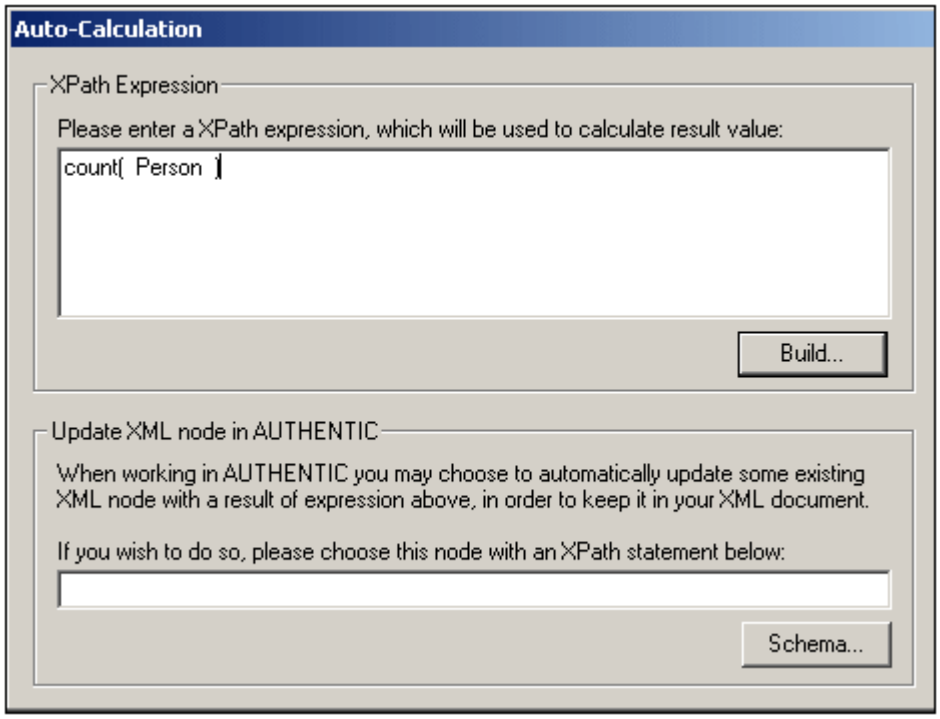

Auto-Calculation
XPath Expression
Please enter a XPath expression, which will be used to calculate result value:
count(Person)
Build...
Update XML node in AUTHENTIC
When working in AUTHENTIC you may choose to automatically update some existing XML node with a result of expression above, in order to keep it in your XML document.
If you wish to do so, please choose this node with an XPath statement below:
Schema...

2. Enter the XPath for the Auto-Calculation. The result of the Auto-Calculation will be displayed at this location in the result document.
3. Optionally, select a node in the schema document to update.

Moving Auto-Calculations
You can move an Auto-Calculation to another location by clicking the Auto-Calculation (to select it) and dragging it to the new location. You can also use cut/copy-and-paste to move/copy an Auto-Calculation. Note, however, that the XPath will need to be changed if the context node in the new location is not the same as the previous one.

Updating an XML node
You can pass the result of the Auto-Calculation to a node in the XML file. To do this, in the Auto-Calculation dialog, enter an XPath to select the node to update. **For the node to be updated, two conditions need to be fulfilled:**

- The XPath expression for the Auto-Calculation must include the value of an XML node as one of the operands.
- In Authentic View, one of the XML node values used as an operand in the Auto-Calculation expression must be modified. If none of the dynamic (XML) operands is modified, the Auto-Calculation result will not update the specified node in the XML file.

5.7 Conditional templates

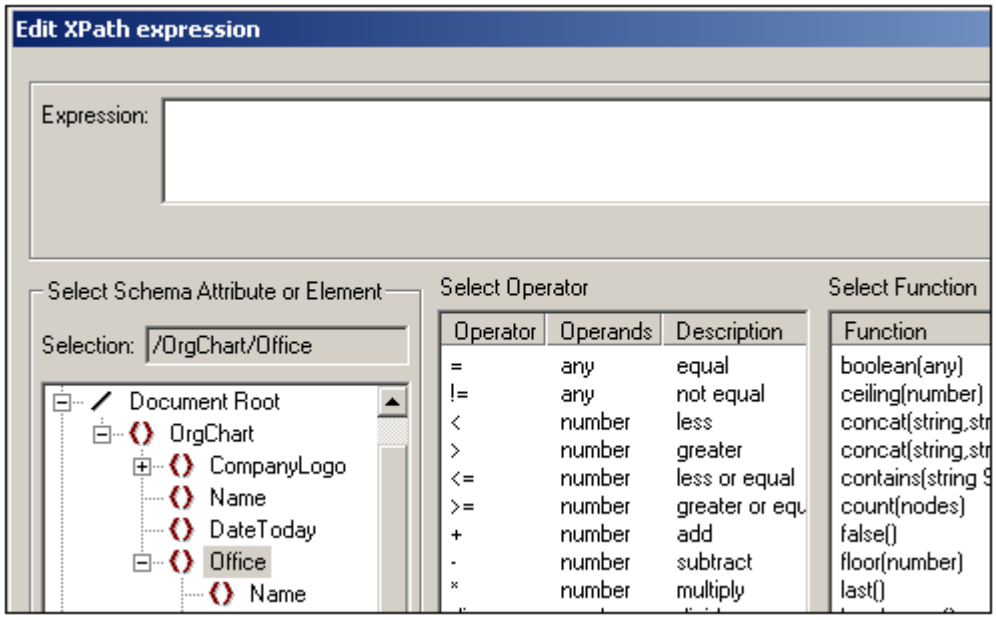
Function
To specify alternative processing according to the value of the XML content.

General mechanism

- A conditional template can be inserted anywhere in the Design Document, at a cursor insertion point or around a component—dynamic or static.
- The node **within which** the conditional template is inserted is the **context node**.
- A conditional template consists of one or more conditions.
- The condition to be tested is specified in an XPath expression.
- The **content** of the **first condition to be evaluated as true** is processed; the other conditions in the template are ignored—even if one or more of them evaluate to true. Note, therefore, that the order in which the conditions are listed is significant.
- Optionally, an **Otherwise condition** can be specified for the event that none of the previous conditions evaluates to true.
- If particular processing is required to match different conditions, i.e. if the conditions are not mutually exclusive, then separate conditional templates must be constructed for these conditions. The non-exclusive conditions should not be included in the same conditional template.

Usage

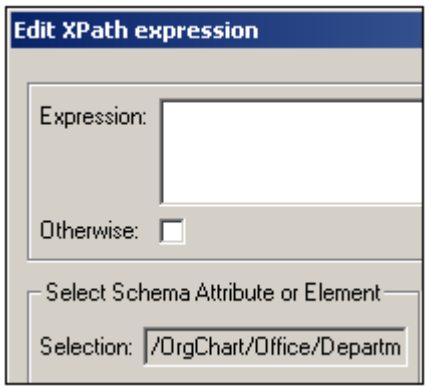
1. Place the cursor where the conditional output is required, or select the node or static content (or both) around which the condition is to be created.
2. Right-click, and select **Insert | Condition...**. The Edit XPath expression dialog appears. It looks like this:



   The context node is highlighted in gray.
3. Build the XPath expression by double-clicking schema nodes and XPath operators and functions. Alternatively, you can enter the XPath expression directly in the Expression field.
4. Click OK. The start and end of the conditional template are indicated by cyan tags with a question mark: ?Location = "... ?.
5. Place the cursor within the conditional template tags, and add the content (static or

dynamic) to be processed and output if the condition (specified in the XPath expression) is true. If a node or static content was selected in Step 1, the conditional template tags are placed around this document fragment, and that document fragment is the content of the conditional template.

6. To add an alternative condition, right-click either the start or end tag of the conditional template, and select **Condition | Add New** or **Condition | Add Copy**. In either case, the Edit XPath expression dialog appears, in which you enter the XPath expression to test for the alternative condition.
7. Click OK. Another condition is added to the conditional template. If you selected **Condition | Add New**, the new condition is empty, and you have to add the content to process and display when this condition is evaluated as true. If you selected **Condition | Add Copy**, then the content of the newly created condition is a copy of the content of the selected condition; you can modify this content as required.
8. To create, an Otherwise template, follow Step 6 to create another conditional template. In the Edit XPath expression dialog, check the Otherwise check box (shown below). (The Otherwise check box appears if one conditional template already exists on that node, static content, or document fragment.)



   The Expression field is grayed out.
9. Click OK to create the Otherwise template, and then add or modify content for the template.

To change the order of conditions in a list of conditions in a conditional template, right-click the conditional template and use the **Condition | Move Up** and **Condition | Move Down** commands to set up the required order. The order of the conditions in a conditional template is significant. This is because the first condition in the list to be evaluated as true is processed; the other conditions are then ignored.

To move a conditional template to a new location, drag the conditional template to the desired location. If the context node of the new location is not the same as that of the original location, then correct the XPath in the condition/s of the conditional template as well as the location paths of any dynamic content within the condition template.

To delete a conditional template without removing the contents, drag the contents to a location outside the tags of the condition and then delete the now-empty condition.

Examples
The section Using Conditional Templates in the STYLEVISION tutorial has examples of conditional templates for:

- Setting up alternative data structures based on the value of a node
- Selecting and processing a node according to the value of another node
- Formatting text differently based on the numeric value of a node.

The section Creating the Table Footer in the STYLEVISION tutorial has examples of conditional templates for:

- Compiling a list based on the numeric value of a descendant node
- Inserting characters based on the position of a node in a nodeset.

Expanding and collapsing elements in Authentic View
You can use conditional templates to provide expanded and collapsed views of elements. To do this, carry out the following steps:

1. In the schema, define an attribute for the elements you want expanded/collapsed. For example, the attribute `collapse` with enumerations `yes` and `no`.
2. In STYLEVISION, create a conditional template around the elements to be expanded/collapsed. If the `collapse` attribute has a value of `yes`, then set the conditional template to display a collapsed form of the element. Otherwise display the descendants of the element.

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5.8 Date Picker

Function
The Date Picker is a graphical calendar in Authentic View for entering dates in the ISO format (**YYYY-MM-DD**) in the XML document. The Date Picker can be enabled for any element of datatype `xs:date`. Including the Date Picker is useful since it provides a quick and easy way for the Authentic View user to enter a date in the fixed XML format.

General mechanism

- The Date Picker must first be enabled for one or more XML schema elements of datatype of `xs:date` in the STYLEVISION Power Stylesheet.
- In Authentic View, dates are entered via the Date Picker by clicking the required date.
- Dates entered via the Date Picker are stored in the standard XML Schema format **YYYY-MM-DD**.

Creating the Date Picker
In order to insert the Date Picker in your STYLEVISION Power Stylesheet, you must toggle on the Auto-Addition of the Date Picker. You can do this by toggling the icon ON or toggling on **Authentic | Auto-add Date Picker**. When the Auto-Addition of the Date Picker is switched on, the Date Picker is inserted when any element of datatype `xs:date` is created as either contents or an Input Field, or changed to either of these two components.

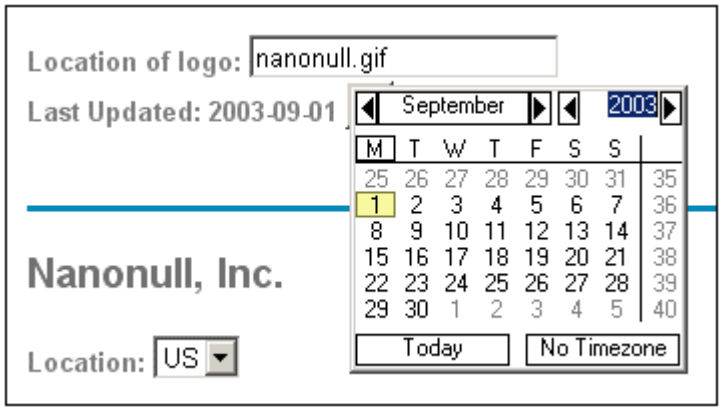
To create an `xs:date` datatype element with an included Date Picker, do the following:

1. Ensure that the Auto-add Date Picker feature has been switched on.
2. Drag the `date` datatype element (called `Date` in the example below) from the schema tree and create it at the desired location in the Design Document as contents or an Input Field. The Design Document for such an element created as contents will look like this:

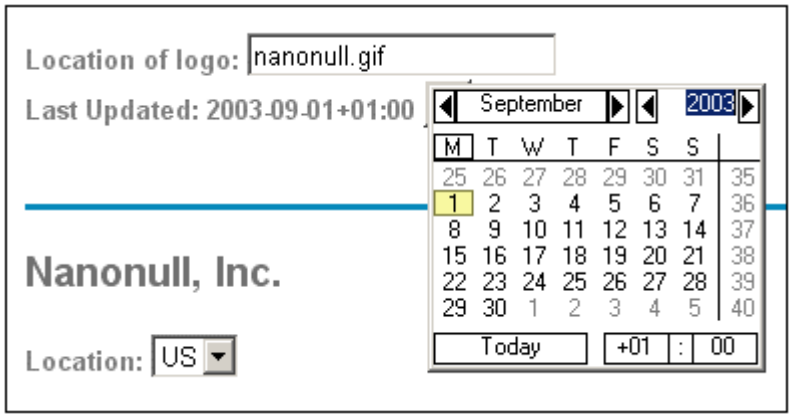
   The Date Picker is created.

Using this STYLEVISION Power Stylesheet, the Authentic View will look like this:

In Authentic View, the content of the Date element is displayed first (in the example above: `2003-09-01`), and after it the icon for the Date Picker. To modify the date, click the icon; this pops up the Date Picker (shown below):



The Authentic View user can also enter the timezone by clicking the Timezone button, which is set to a default of No Timezone. The XML entries for the timezone are also in the standard XML Schema format for timezones, e.g. `2003-09-01+01:00`.



Note: If you have created the `xs:date` datatype element as contents or Input Field, but without the Date Picker, you can subsequently insert the Date Picker in your STYLEVISION Power Stylesheet by placing the cursor at the desired location inside the element, and clicking **Insert | Date Picker**. See Date Picker in the User Reference.

Limitation: The Auto-Calculation feature cannot be used for date-based operations. So you cannot, for example, use Auto-Calculation to calculate the number of days between two values of the `xsd:date` datatype.

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5.9 Input Formatting

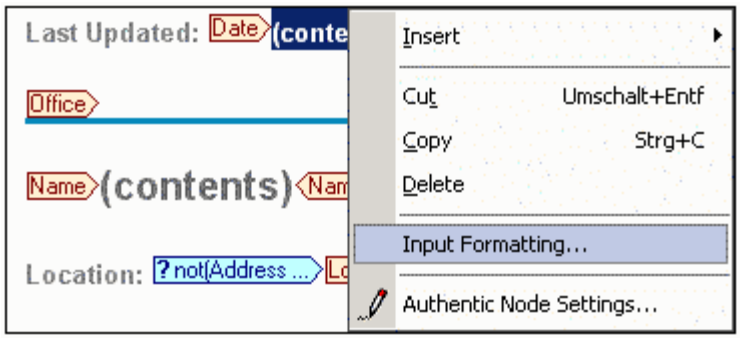
Function
With Input Formatting, the contents of numeric XML Schema datatype elements can be formatted for Authentic View and/or HTML and PDF output as required. Input Formatting can also be used to format the result of an Auto-Calculation.

General mechanism

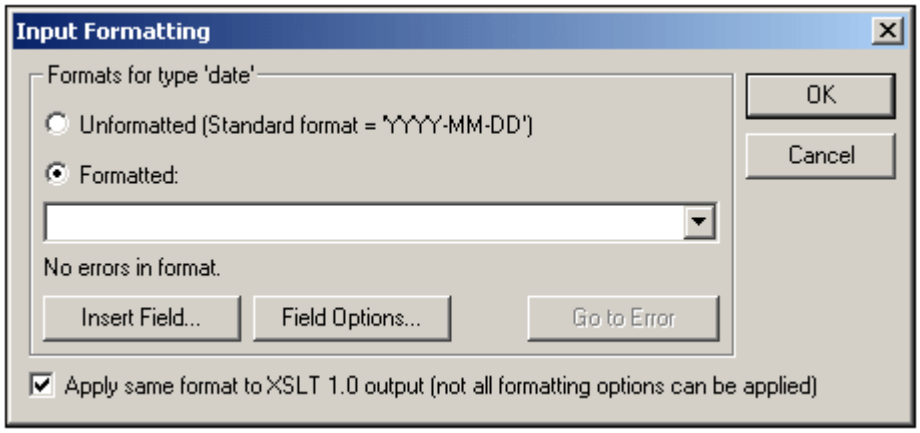
- The numeric XML Schema datatype element to be formatted must be present in the Design Document as contents or as an input field.
- Select the `(contents)` placeholder or input field, and apply the required formatting via the Input Formatting dialog. Formatting can also be applied to an Auto-Calculation field.
- The formatting applies to Authentic View, and optionally to HTML and PDF outputs. (The actual data in the XML file is stored in the standard format for that datatype.)

Applying input formatting
Input formatting can be applied to any numeric XML Schema datatype element, such as `xs:date`, which is present in the Design Document **as contents or an input field**. To format such an element, do the following:

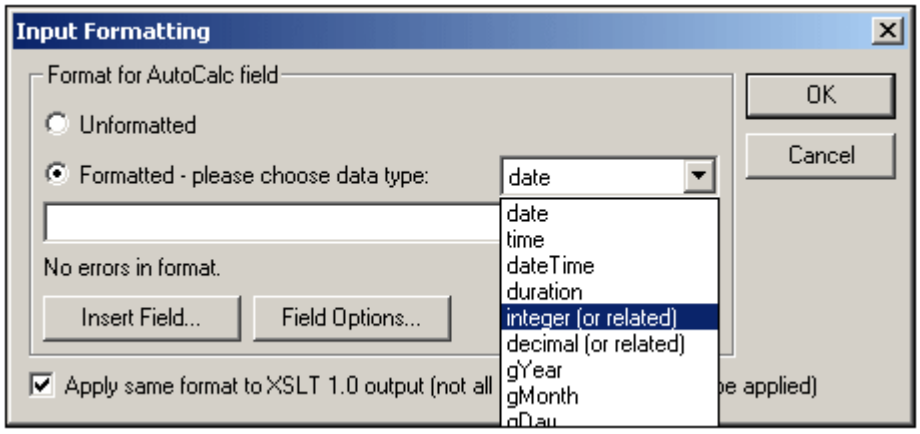
1. In the Design Document, right-click the `(contents)` placeholder or input field of the element, and in the context menu that appears (shown below), click **Input Formatting...**.



2. The Input Formatting dialog (shown below) appears. Note that the dialog below contains the line: "Formats for type 'date'" and that the standard format for the date datatype is given. This is because the datatype of the element selected in this case is `xs:date`. For another datatype, the information and options in the dialog would be correspondingly different.

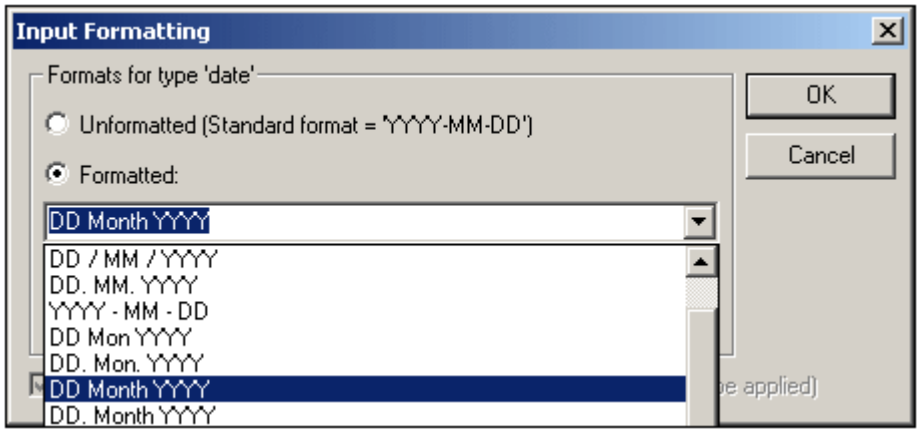


You can specify that the element's content be unformatted (i.e. that it have the standard formatting for that datatype), or that it have a customized formatting.
If you are formatting an Auto-Calculation field, the following dialog appears:



Since an Auto-Calculation field has no datatype assigned to it, you must select one from the drop-down menu shown in the figure above.

3. To specify a customized format, select the Formatted radio button, then enter a format in the input field. You can enter a format by selecting a pre-defined format from the drop down menu (shown below), by building one using the Insert Field and Field Options buttons, or by typing in the format. What pre-defined formats are available depends upon the datatype of the element or, in the case of an Auto-Calculation, the datatype you select.



For details of syntax, see the section below.

4. The formatting that you enter will apply to the Authentic View of an XML document. By default, the check box "Apply same format to XSLT 1.0 output" is checked, which means that the formatting will also be applied to HTML and PDF outputs via the generated XSLT stylesheets. If you wish to not have the formatting apply to HTML and PDF outputs, uncheck this check box. In the event some part of the formatting you specify cannot be applied to the HTML and PDF outputs, the "Apply same format to XSLT 1.0..." option will be grayed out.
5. Click OK to apply the formatting.

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Note:

- An error in syntax causes the OK button in the Input Formatting dialog to be disabled and the Go to Error button to be enabled. An error message is also displayed in the line below the combo box. Clicking the Go to Error button takes you the point in the format statement where the syntax error is.
- If the result of an Auto-Calculation does not match the fixed XML Schema format of that datatype, then the formatting will be undefined and the Auto-Calculation result will not be displayed correctly.

Insertion and Overwrite fields

Depending on the datatype, the Authentic View user will be able to insert or overwrite digits in the input field. Fields which do not have any semantic meaning beyond their numerical significance, such as integers and decimals, are insertion fields. Fields that do have some kind of semantic meaning, such as years and days, are overwrite fields.

Syntax for input formatting

The basic syntax is:

`[prefix character/s]field[suffix character/s][{field-option1,field-option2,...}]`

where **`prefix character/s`** and **`suffix character/s`** are optional specifiers used to control alignment and the display of positive/negative symbols; **`field`** can be any datatype-specific formatting or text; and **`{field-option(s)}`** is an optional qualifier, that enables additional formatting options.

- Any number of fields can be specified, and any two fields can be separated by the following characters: space, hyphen, comma, colon, period, or by a text string in single or double quotes. Note, however, that fields do not need to be separated.
- One or more optional field-options are allowed per field. The field-option/s for each field must be contained in curly braces, and must follow the field without any intervening space. Multiple options are separated by "`,`" (comma).

Example for an `xs:date` datatype element:

```
DD Month{uc,ro} YYYY
```

where `uc` and `ro` are field-options for making the `Month` field uppercase and read-only, respectively

An example of the output would be:

```
24 SEPTEMBER 2003
```

Example for an `xs:decimal` datatype element:

```
"$"(##0.00)
```

Examples of the output would be:

```
$ 25.00
$ 25.42
$267.56
```

Field types: You will find examples for the datatype-specific field types in the drop-down menu of the Input Formatting dialog. The following tables list the available field types.

Field Type	Explanation
#	Space if no digit at position
0	Zero if no digit at position
,	Digit separator
Y	Year
y	year (base = 1930); see Note below
M	Month
D	Day
W	Week number
d	Weekday number (1 to 7)
i	Day in the year (1 to 366)
h	Hour (0 to 23)
H	Hour (1 to 12)
m	Minute
s	Second
AM	AM or PM
am	am or pm
AD	AD or BC
ad	ad or bc
CE	CE or BCE
ce	ce or bce

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Field Type	Explanation
Weekday	Weekday (Sunday, Monday...)
WEEKDAY	Weekday (SUNDAY, MONDAY...)
weekday	Weekday (sunday, monday...)
Wkd	Weekday (Sun, Mon...)
WKD	Weekday (SUN, MON...)
wkd	Weekday (sun, mon...)
Month	Month (January, February...)
MONTH	Month (JANUARY, FEBRUARY...)
month	Month (january, february...)
Mon	Month (Jan, Feb...)
MON	Month (JAN, FEB...)
mon	Month (jan, feb...)

Field length: The following points should be noted:

- When fields such as Y, M, and m are used, the exact length is output. When a field type is repeated, then the length is what is specified in the formatting. For example, if you specify YYYYYY, then the first two (redundant) spaces are filled with 0s. See also Base Year below.
- The Authentic View user is not allowed to add more digits than are specified in the format. If the length of a **pre-existing** value in the XML file exceeds the length specified in the format, the entire value is displayed; the user will, however, not be allowed to enter more digits.
- The * (asterisk) symbol is used to extend the length of a non-semantic numeric field (integers, decimals, etc). In the case of decimals, it can be used on either or both sides of the decimal point. For example, the input formatting *0.00* ensures that a number will have zeroes as specified in the formatting if these digit locations are empty, as well as any number of digits on both sides of the decimal point.

Prefix and suffix characters: Prefix and suffix characters are used to specify alignment and details of the positive/negative symbol. The following table lists the prefix and suffix characters.

Prefix	Suffix	Explanation
<		Left aligned; default for text
>		Right aligned; default for numbers
?		Minus symbol if negative; nothing otherwise; default
?>		Minus symbol flush left if negative; nothing otherwise
<?>		Minus symbol flush left if negative; nothing otherwise
-	-	Minus symbol if negative; space otherwise; located before (prefix), after (suffix)
->	>-	Minus symbol if negative; space otherwise; located flush left (prefix); fixed position (suffix)
<->		Minus symbol flush left if negative; space otherwise
+	+	Plus or minus sign always; located before (prefix), after (suffix)
+>	>+	Plus or minus sign always; flush left (prefix), fixed position (suffix)
<+>		Plus or minus sign always; located flush left
(	)	Parentheses if negative; space otherwise
(>	>)	Parentheses if negative; space otherwise; located flush left (prefix); fixed position (suffix)
<(>		Parentheses if negative; space otherwise; located flush left
[	]	Parentheses if negative; nothing otherwise
[>	>]	Parentheses if negative; nothing otherwise; located flush left (prefix); fixed position (suffix)
<[>		Parentheses if negative; nothing otherwise; located flush left
*	*	Extendable number of digits to left (prefix) or to right (suffix)
_	_	Space
^	^	Fill character (defined in options)
	th	Ordinality of number (st, nd, rd, or th)
	TH	Ordinality of number (ST, ND, RD, or TH)

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Options: The following options are available:

Option	Explanation
uc	Make uppercase
lc	Make lowercase
left	Left aligned
right	Right aligned
ro	Read (XML) only; no editing allowed
edit	The field is editable (active by default)
dec=<char>	Specify a character for the decimal point (default is point)
fill=<char>	Specify fill character
base=<year>	Base year for year fields (see Note below)
pos	Show only positive numbers; input of negative numbers allowed

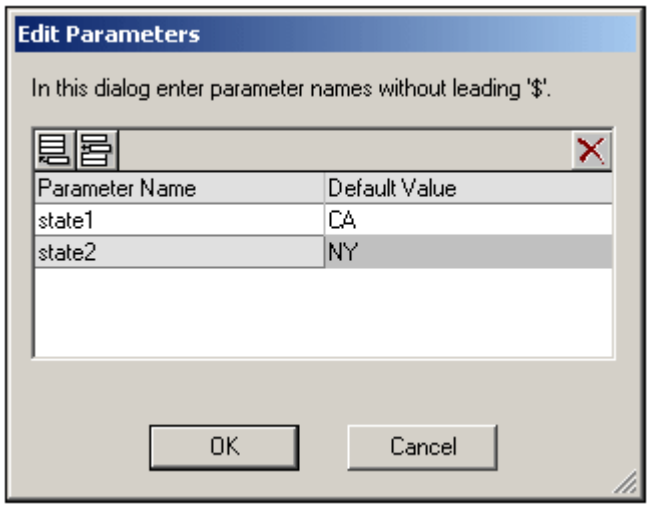
Note on Base Year: When using short year formats (for example, `DD-MM-YY{base=1940}`), the base year specifies a cut-off for a century. If the user enters a value that is equal to or greater than the last two digits (considered together as a number) of the base year, then the century is the same as that of the base year. If the user value is less than the last two digits, the century is the century of the base year plus one. For example if you set `base=1940`, then if the Authentic View user enters "50", the XML value for the year will be `1950`; if the user enters "23", the XML value will be `2023`. Although two digits are commonly used as the short year format, one-digit and three-digit short year formats can also be used with a base year. Note that if you use the `y` field type, the base year is taken to be 1930.

5.10 Parameters

In STYLEVISION, you can declare parameters globally for the entire STYLEVISION Power Stylesheet. A parameter is declared with a name and a string value. This value is the default value and can be overridden by a value passed from the command line.

Mechanism

1. You declare one or more global parameters using the **Edit | Edit Stylesheet Parameters...** command. This pops up the Edit Parameters dialog (shown below). Declaring a parameter involves giving it a name and a string value, which is its default value. If no value is specified, the default value is an empty string.



   In the Edit Parameters dialog, you can append or insert new parameters, as well as edit existing parameters. Parameter names **must begin with** a letter, and can contain the characters `A` to `Z`, `a` to `z`, `0` to `9`, and the underscore.
2. You then define where in the STYLEVISION Power Stylesheet a parameter is to be used. You use parameters by calling them in XPath expressions with **`$paramname`**. For instance, you could call a parameter in the XPath of an Auto-Calculation (e.g. `concat('www.', $company, '.com')`). If your STYLEVISION Power Stylesheet is DB-based, then you can also use parameters as the values of DB Filter criteria. The parameters, however, are declared and edited in the Edit Parameters dialog.
3. You can pass a parameter in the stylesheet a value from the command line (see STYLEVISION from the command line for details). This value overrides the default value of the parameter. Parameters in DB Filters can also be passed new values via the command line.

Use of parameters
Parameters are useful in the following situations:

- If you wish to use one value in multiple locations. In this case, you can save the required value as a parameter value and use the parameter in all the required locations.
- If you wish to pass a value to the stylesheet at processing time. In the stylesheet, you use a parameter with a default value. At processing time, you pass the desired value to the parameter via the command line.

Note:

- Using parameters as described above allows you to declare parameters with default values in the STYLEVISION Power Stylesheet. When you generate the XSLT stylesheets, parameters will be included in these. You can then use the command line

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to generate HTML and PDF output. Parameters are currently not supported in Authentic View. This means that parameters used in the STYLEVISION Power Stylesheet will **not** be processed for the Authentic View output.

- The Edit Parameter dialog contains **all** the parameters that have been defined for the stylesheet.
- While it is an error to use an undeclared parameter in the STYLEVISION Power Stylesheet, it is not an error to declare a parameter and not use it.

5.11 PDF processing and page layout

Generating PDF output from your XML file is a two-step process:

1. An XSLT transformation is used to transform the XML file into an XSL-FO file (FO file). In the transformation process, page sequencing and page layout properties are added, so that the FO file contains this information in addition to the content.
2. The FO file is processed by an FO processor to generate the PDF.

STYLEVISION generates, from the STYLEVISION Power Stylesheet, the XSLT that will transform an XML file into an FO file. Besides allowing you to format the components of a page, STYLEVISION allows you to design an optional cover page and optional headers and footers for the PDF output. After you have defined these page layout features, you can generate the XSLT for FO by clicking **File | Save generated XSL-FO file...**. You can then use this XSLT to process the XML.

In STYLEVISION, you can see a preview of the PDF output in the PDF Preview tab. (Clicking the PDF Preview tab executes the following background processes: (i) the Working XML File is processed with the XSLT-for-FO generated by the STYLEVISION Power Stylesheet; (ii) the resulting FO is processed with the FO processor, and the PDF is displayed in the PDF Preview tab.) Note that the PDF display is a preview; it cannot be saved. To obtain the PDF you must carry out the actual two-step transformation.

This section describes how to set up:

- Page dimensions of the PDF
- The cover page
- Headers and footers
- Fonts

For information on how the header and footer of tables that flow over more than one page are handled, see Formatting static and dynamic tables.

Also see: PDF Page Properties and Tools | XSL:FO Options. For advanced issues, see XSL-FO and PDF issues.

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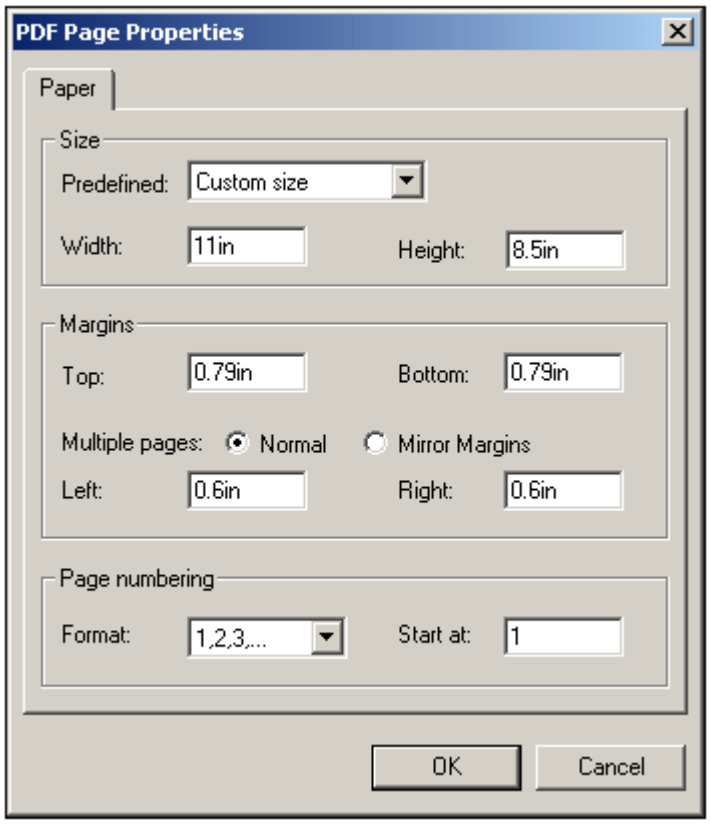
5.11.1 PDF page definition

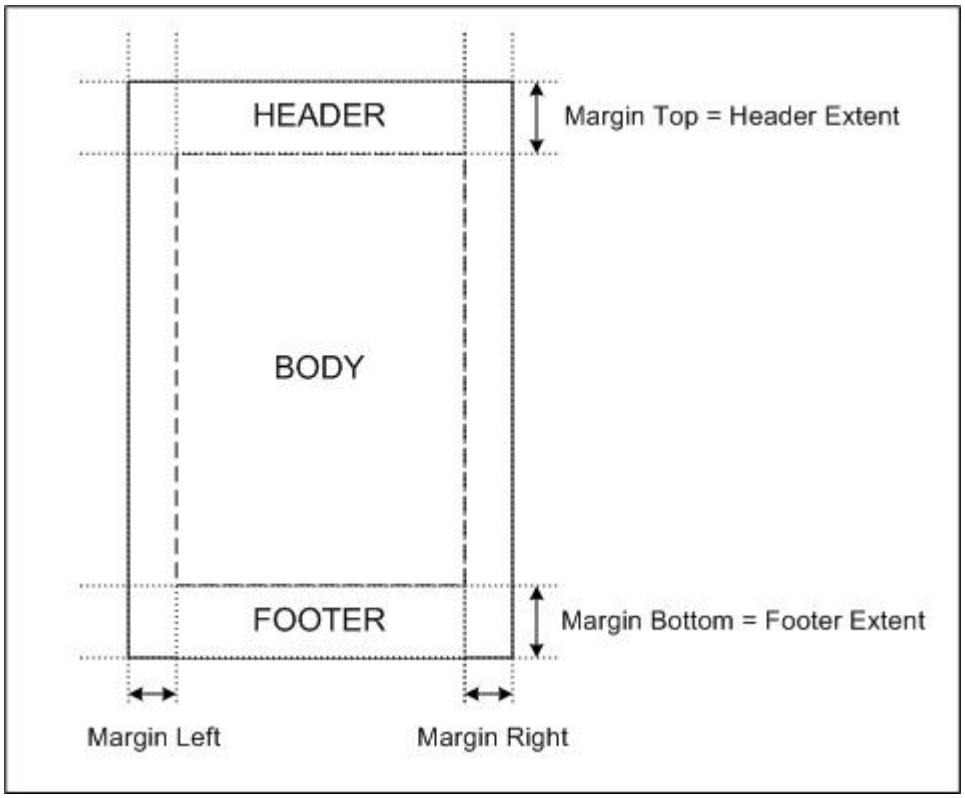
For the PDF output, certain basic page properties can be defined. These include the size of the PDF page, the margins of the page, and page numbering options. All these settings are available in the **PDF Page Properties** dialog, which you open by selecting the menu option **Properties | PDF page**. The dialog is as shown below.



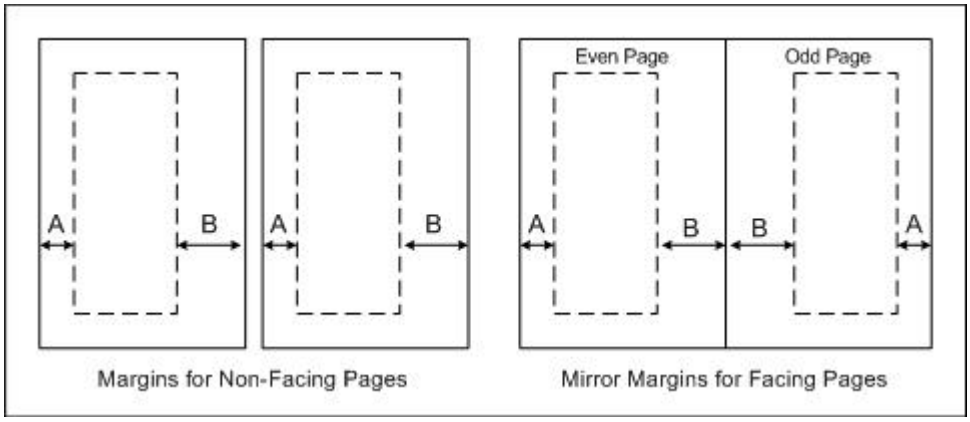
Page size
Set the page size by selecting one of the pre-defined options from the drop-down menu, or by selecting **"Custom size"** and then entering the desired page width and page height.

Page margins
Set the top, bottom, left and right margins by entering the required number followed by any of the XSL units: points (pt), picas (pc), centimeters (cm), millimeters (mm), and inches (in). Note that (i) there must not be a space between the number and the unit; (ii) there is no default unit; (iii) a unit is mandatory.

Note that the top and bottom margins also determine the vertical extent of the header and footer, respectively.



If you set **Multiple pages** to "Normal", then all pages in the PDF will have the same value for all left margins and the same value for all right margins. If, on the other hand, you set **Multiple pages** to "Mirror Margins", then the document pages are treated as facing pages. This means that for even-numbered pages (left-hand-side pages), the outer margin is the left margin while the right margin is the inner margin; for odd-numbered pages (right-hand-size pages), the outer margin is the right margin while the left margin is the inner margin.

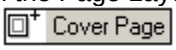


Page numbering
Set the required page number format by selecting one of the pre-defined options from the drop-down menu. Set the page numbering to start with any positive integer. If a cover page is defined, page numbering starts with the first page after the cover page and a blank second page, i.e. with the third page. Otherwise page numbering starts with the first page.

Tip: To output the number of the last page (which could also be the total number of pages), do the following:

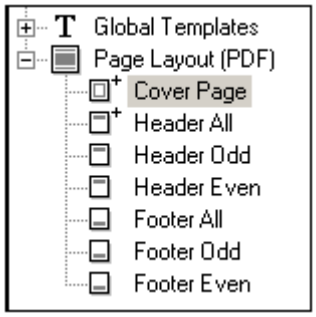
1. After you have completed designing your STYLEVISION Power Stylesheet in STYLEVISION, generate the XSL-FO stylesheet (**File | Save generated XSL:FO file**).
2. Open the XSL-FO file in text view. At the end of the Root Template add an `<fo:block>` element with an id, say `<fo:block id="end"/>`. This block will be created on the last page of the document, and acts as a marker.
3. Where you want the number of the last page (or, possibly, the total number of pages) to be displayed insert `<fo:page-number-citation ref-id="end"/>` (within an `<fo:block>` element if required).

5.11.2 PDF cover page

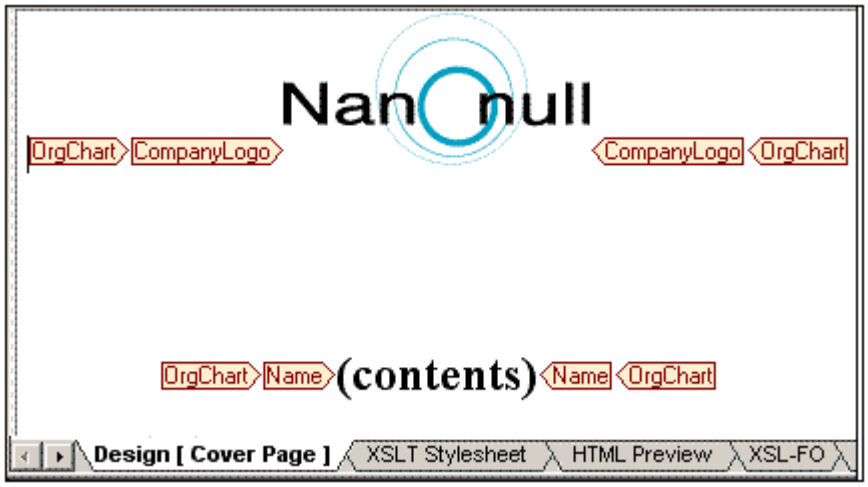
To create a cover page, click the Cover Page item in the Page Layout (PDF) list in the Schema Window. A + sign appears to the left of Cover Page 

indicating that a cover page has been defined and will be created in the PDF. When no + sign is present, then no cover page has been defined and none will be created. To make a cover page, do the following:

1. With the Design window selected, go to the document tree view, expand the Page Layout (PDF) entry, and click the Cover Page icon to access the cover page template.



2. In the template, you can enter any of the components normally available in the Design window, whether static or dynamic. For example, you can insert static or dynamic text or images, static or dynamic tables, and format components with the Text and Block Style windows. An example is shown below.



3. Click the PDF Preview tab to see the result in the Preview window.

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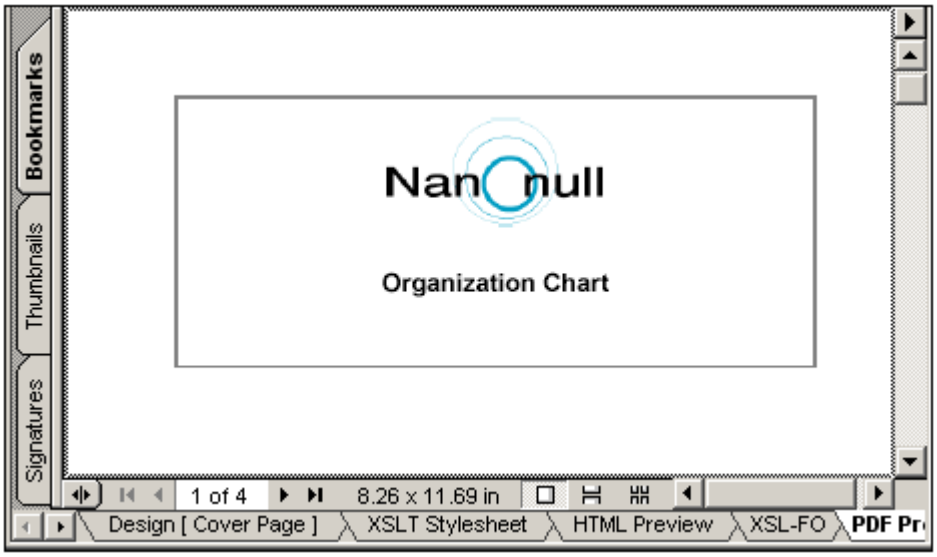


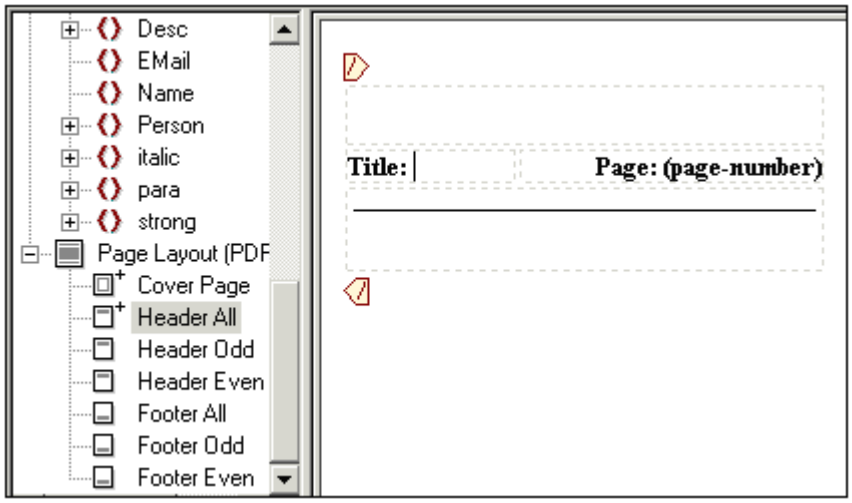
The following points should be noted:

- The cover page has the same page dimensions as those you have defined for the rest of the PDF document (under **Properties | PDF Page**).
- A blank second page is automatically inserted into the PDF as the reverse side of the cover page.
- You can use any of the components or formatting methods available in the Design window.

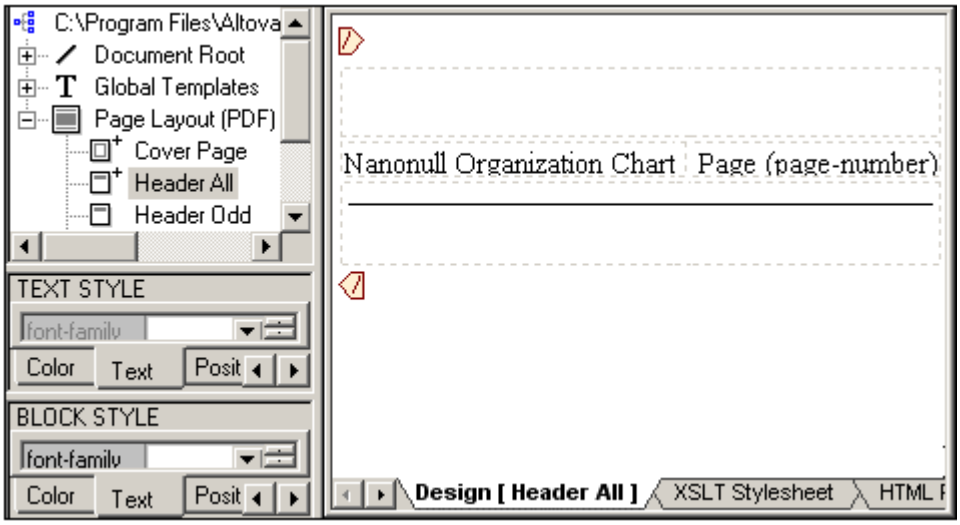
5.11.3 PDF headers and footers

Headers and footers are defined using the same method as for the cover page. A single header/footer can be defined for all pages by using the Header All / Footer All icons, or different headers/footers can be defined for odd and even pages, using the Header Odd / Footer Odd icons and Header Even / Footer Even icons. To specify the same header for all pages, do the following:

1. Click the Header All icon to access the Header All definition window. The default header template shown below appears.



2. Change the header as required. Note that you can use both static and dynamic content, and even images.



4. Click the PDF Preview tab to see the results in the PDF Preview window. The illustration below shows Page 2 of the Organization Chart document, with the header as defined above.

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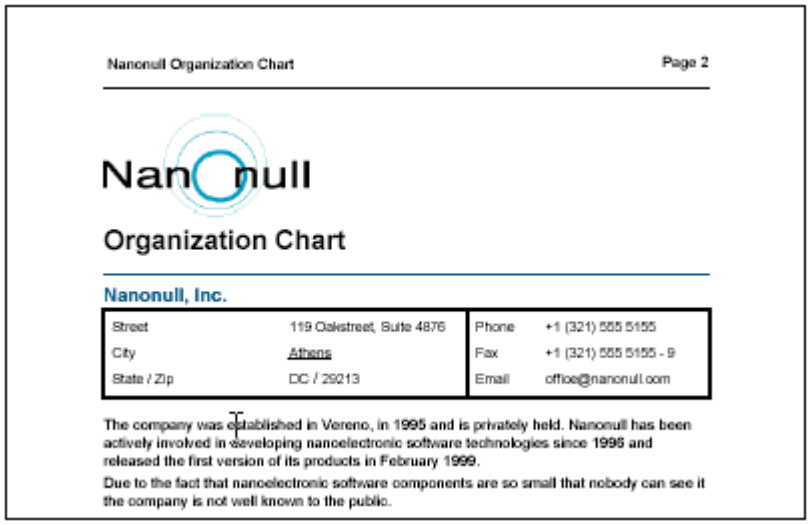
Nanonull Organization Chart
Page 2
Nanonull
Organization Chart
Nanonull, Inc.
Street
119 Oakstreet, Suite 4876
City
Athens
State / Zip
DC / 29213
Phone
+1 (321) 555 5155
Fax
+1 (321) 555 5155 - 9
Email
office@nanonull.com
The company was established in Vereno, in 1995 and is privately held. Nanonull has been actively involved in developing nanoelectronic software technologies since 1996 and released the first version of its products in February 1999.
Due to the fact that nanoelectronic software components are so small that nobody can see it the company is not well known to the public.

The following points should be noted:

- The vertical extent of the header and footer is equal to the top margin and bottom margin of the PDF page, respectively (which are defined in **Properties | PDF Page**). If you wish to modify the vertical extent of the header or footer, you must change the top or bottom margin, respectively.
- The extents of the header and footer that you define must not exceed the height of the top-margin and bottom-margin, respectively.
- You can define a header/footer either (i) for all pages, or (ii) for even and odd pages separately.
- Page numbering starts with the number you specify in the PDF page properties dialog (click **Properties | PDF Page**).
- To obtain vertical spacing within a header/footer, you can use (i) the table padding property (click **Table | Properties**) for a global padding, or (ii) insert table rows and manipulate their vertical heights by (a) dragging the row borders, or entering a number (without units) or a percentage for the `height` attribute in the **Table | Cell** tab of the Table Properties dialog.
- To obtain horizontal spacing within a header/footer, either insert table columns or change column widths (by dragging borders or entering a number (without units) or a percentage for the `width` attribute in the **Table | Cell** tab of the Table Properties dialog.
- For alignment of cell content, click the alignment icon in the toolbar or enter a value for the `align` attribute of the **Table | Cell** tab of the Table Properties dialog.
- For vertical alignment of cell content, use the settings in the `valign` attribute of the **Table | Cell** tab of the Table Properties dialog.

5.11.4 PDF fonts

How the formatter and PDF Viewer use fonts
The formatter creates the PDF and the PDF Viewer (typically Adobe's Acrobat PDF Reader) reads it.

In order to lay out the PDF, the formatter needs to know details about the fonts used in the document, particularly the widths of all the glyphs used. It needs this information to calculate line lengths, hyphenation, justification, etc. This information is known as the metrics of the font, and it is stored with each font. Some formatters (such as XEP) can read the metrics directly from the system's font folder. Others (such as FOP) need the metrics in a special format it can understand. When the metrics of a font are available to the formatter, the formatter can successfully lay out the PDF. You must ensure that the font metrics files of all the fonts you use in your document are available to the formatter you are using.

The formatter can either reference a font or embed it in the PDF file. If the font is referenced, then PDF Reader will look for that font in its own font resource folder (which contains the Base 14 fonts) first, and then in the system's font folder. If the font is available, it will be used when the PDF is displayed. Otherwise the Reader will use an alternative from its resource folder or generate an error. An alternative font may have different metrics and could therefore generate display errors.

If the formatter embeds a font in the PDF file, then the PDF Viewer uses the embedded font. The formatter may embed the entire character set of a font or only a subset that contains the glyphs used in the document. This factor affects the size of the PDF file and, possibly, copyright issues surrounding font use (see note below). You might be able to influence the choice between these two options when you set the options for your formatter.

Using fonts in STYLEVISION

- The default document font used in the PDF output is Helvetica (Acrobat PDF Reader versions prior to 4.0) or Arial MT (Acrobat PDF Reader version 4.0 or later). For more on this subject, see Base 14 fonts. So, if no font is specified for any text in the document, Helvetica/ArialMT will be used.
- If you specify Helvetica or Times in the STYLEVISION Power Stylesheet, and if the Acrobat PDF Reader used to view the PDF output from this STYLEVISION Power Stylesheet is version 4 or higher, then the PDF Reader will use Arial MT and Times New Roman PS MT, respectively, from its own font resources folder; Acrobat PDF Reader does this even if Helvetica and Times are active on the system.
- In STYLEVISION, you can change the default font for the entire document by selecting the document element in the Root Template and assigning the desired font to the `font-family` attribute in the Text tab of the Text Style window. This font is assigned to each node in the document. An alternative font can then be set for an individual descendant node and this value will be inherited by descendant nodes of that node.
- If in the **Tools | XSL-FO Options...** dialog you select FOP 0.20.5 compliant, then only the font-family values Helvetica, Times, Courier, and Symbol (exactly as spelled here) will be passed through to the XSLT-for-FO. Entering any other font-family value on a node will remove the `font-family` attribute from that node in the resulting FO document—leading to the default Helvetica/ArialMT being output for that node.
- If in the **Tools | XSL-FO Options...** dialog you select Full usage of XSL-FO standard, then any font-family you enter in the Text Style window will be passed to the XSLT-for-FO.
  If the selected font is not available to the formatter, an error may result. In order to avoid such errors, add alternative fonts and a generic fallback. For example:

  ```
  font-family="Bodoni, Garamond, serif"
  ```

  In this example, Garamond is a second choice, and the generic serif is the fallback font.

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If neither Bodoni nor Garamond is available, then the generic serif font is used. The three generic fonts are: serif (Times or Times New Roman PS MT, depending on the Acrobat Reader version), sans-serif (Helvetica or ArialMT), and monospace (Courier).

Note for HTML use: CSS-2 allows alternative choices, as well as a generic font as a fallback (serif, sans-serif, monospace, cursive, and fantasy).

Making fonts available to the formatter
Most formatters already have available to them the Base 14 fonts. It is important to know the names by which the formatter recognizes these fonts so that you correctly indicate them to the formatter. Usually this is the extent of font support. You can, however, increase the number of fonts available to the formatter by carrying out a few straightforward steps specific to the formatter you are using. The steps for FOP and XEP are given below.

Setting up font support in FOP
FOP needs its font metrics files in a special XML vocabulary. So you have to create the required metrics files from the actual font files, and then register the metrics files with FOP.

1. Create the font metrics file from the PostScript and TrueType font files. FOP provides PFM Reader and TTF Reader utilities to convert PostScript and TrueType fonts, respectively, to XML font metrics file. For details of how to do this, see the FOP: Fonts page.
2. Register the fonts with FOP. You do this by entering information about the font files in an FOP configuration file. See FOP: Fonts.
3. In the file `fop.bat`, edit the line:

   ```
   java -cp %LOCALCLASSPATH% org.apache.fop.apps.Fop %1 %2 %3 %4 %5 %6 %7
   %8
   ```

   to include the location of the configuration file:

   ```
   java -cp %LOCALCLASSPATH% org.apache.fop.apps.Fop -c
   conf/userconfig.xml %1 %2 %3 %4 %5 %6 %7 %8
   ```

Setting up font support in XEP
Edit the file `etc/fonts.xml` in the XEP installation directory. To add support for Bodoni, for example, you should add entries similar to the following:

```
<font name="Bodoni" embed="true"
      ttf="C:\Windows\Fonts\bodoni.ttf">
</font>

<font name="BodoniBold" embed="true"
      ttf="C:\Windows\Fonts\bodonibd.ttf">
</font>

<font name="BodoniItalic" embed="true"
      ttf="C:\Windows\Fonts\bodonii.ttf">
</font>

<font name="BodoniBoldItalic" embed="true"
      ttf="C:\Windows\Fonts\bodonibi.ttf">
</font>
```

For more details, see XEP: Configuring Fonts.

Note on font copyrights: Font usage is subject to copyright laws, and the conditions for use vary. Before embedding a font—especially if you are embedding the entire font— make sure that you are allowed to do so under the license you have purchased for that font.

Character sets

Note that the character sets of fonts differ from each other. The Base 14 fonts cover the ISO-8859-1 characters plus the glyphs in the Symbol and Zapf Dingbats fonts. If your document contains a character that is not covered by the Base 14 fonts, then you will have to use a font that contains this character in its character set.

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5.12 Databases in STYLEVISION

In STYLEVISION, you can create a STYLEVISION Power Stylesheet (SPS file) based on a database. This enables you to use STYLEVISION with databases in the following ways:

- As a reporting tool for databases (you can view and manipulate DB data in a customized design)
- To generate an XML Schema having a structure based on the database
- To generate an XML file with data from the database
- To design and generate HTML and PDF reports containing data from the database in a customized design

This section describes how you work with databases in STYLEVISION.

General mechanism
Working with databases in STYLEVISION consists of two broad parts:

- Building a STYLEVISION Power Stylesheet based on the database. In this part, you generate an XML Schema from the database, design the STYLEVISION Power Stylesheet, and preview the HTML and PDF outputs of the STYLEVISION Power Stylesheet using a Working XML File that is temporarily created from the DB data
- Generating output from within the GUI and from the command line

Building the STYLEVISION Power Stylesheet
Building the STYLEVISION Power Stylesheet involves the following steps:

- Connecting to a database and "loading" it into STYLEVISION. What you "load" is a **temporary XML Schema**. The XML Schema is created with a document element called `DB`. The `DB` element contains children elements which correspond to the top-level tables in the database. The children elements of `DB` are also created as entries in the Global Templates list in the Schema Window. A **temporary XML file** is created each time either the HTML or PDF Preview tabs is clicked (i.e. it functions as the Working XML File). The temporary XML File has the structure of the XML Schema and contains data from the database. Connecting to a DB is described in Connect to a DB and set up the SPS.
- You can build a Database (DB) Filter to restrict the data that is imported into the temporary XML file. If, after you have created or modified a DB Filter, you click either the HTML or PDF Preview tabs, the temporary XML file that is created will contain data imported according to the new filter criteria. How to create a DB Filter is described in DB Filters.
- Designing the output document. You can use the full range of STYLEVISION features described in this documentation to manipulate the DB data. You can also preview the HTML and PDF outputs that will be generated by the design. You design a DB-based STYLEVISION Power Stylesheet just as you would design a schema-based STYLEVISION Power Stylesheet.

Note: Data input to the DB via Authentic View is not supported. Consequently, the Authentic Preview tab of STYLEVISION is automatically disabled when an STYLEVISION Power Stylesheet based on a DB is created or opened.

Generating output files
After you have completed the STYLEVISION Power Stylesheet, you can save the following output from within the STYLEVISION interface (**File | Save Generated Files...**) or from the command line.

- The generated XML Schema based on the DB structure
- The generated XML File
- The XSLT for HTML output

- The XSLT-for-FO for PDF output
- The HTML output file
- The FO output file
- The PDF output file

How you generate output files is described in Generating output files from the DB.

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5.12.1 Connect to a DB and set up the SPS

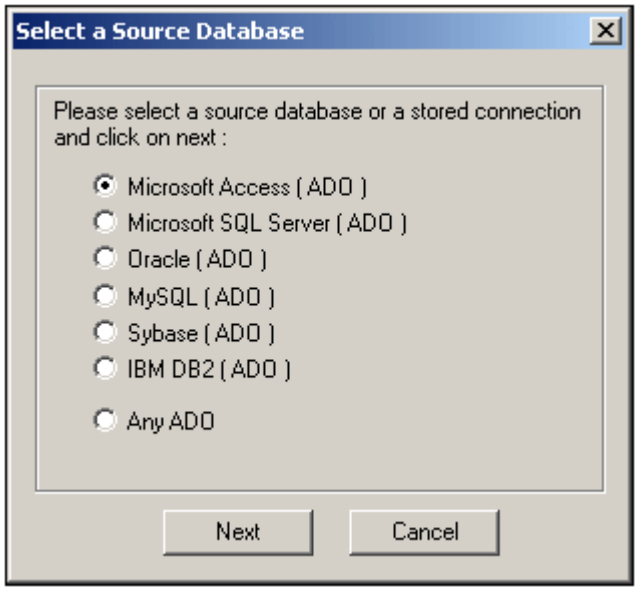
Setting up a STYLEVISION Power Stylesheet for a DB consists of two broad steps

- Browsing for the DB file (in the case of a MS Access DB), or explicitly building a **connection string** (for all other DBs except MS Access DBs). Note that **only ADO connections are supported**. This is because ADO's shape command support enables data to be generated hierarchically.
- Selecting the **Base Table information** (which enables you to select what tables from the database to import). The temporary XML Schema that is generated and the XML file that is created will be based on the selected data tables.

These steps are described in detail below.

Select the DB type

1. Click **File| New from DB**. The following dialog is displayed:


Select a Source Database
Please select a source database or a stored connection and click on next :
Microsoft Access (ADO)
Microsoft SQL Server (ADO)
Oracle (ADO)
MySQL (ADO)
Sybase (ADO)
IBM DB2 (ADO)
Any ADO
Next
Cancel

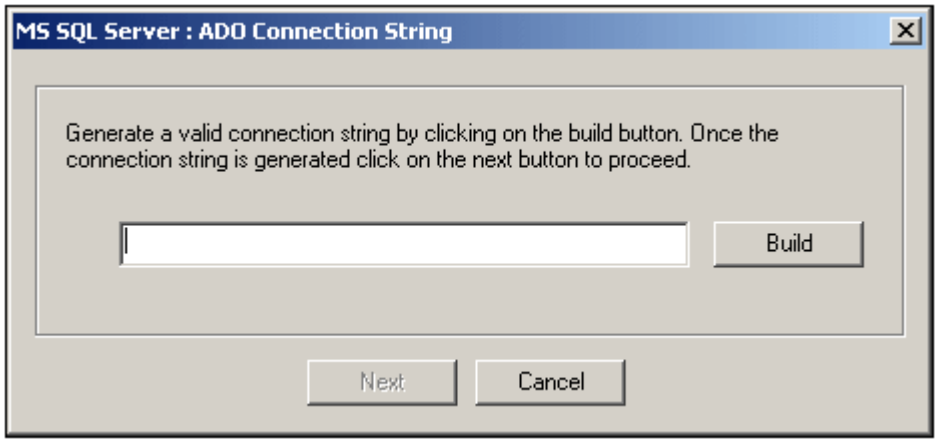
2. Select the source DB type and click **Next**. If you selected a DB type of MS Access, then a dialog appears in which you can browse for the DB. If you selected any other DB type option, a dialog appears prompting you to build a connection string.

Browsing for an MS Access DB
If you selected an MS Access DB, the Select a MS Access Database dialog is displayed. Do the following:

1. Click **Browse** and select an existing MS Access database.
2. Click **Next**. The Select Base Table Information dialog is displayed.

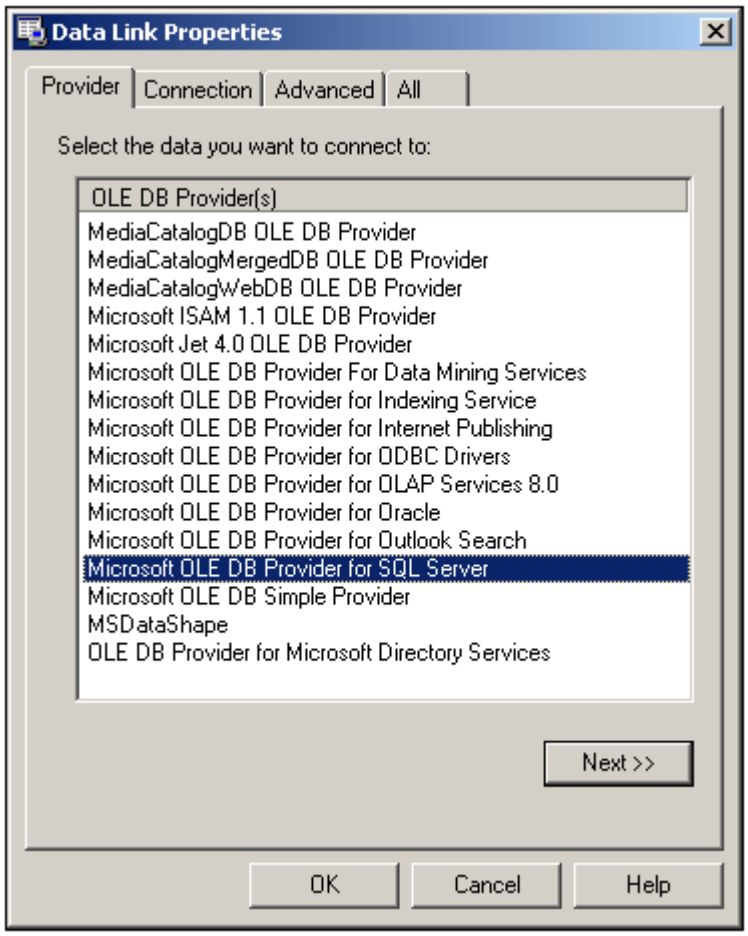
Now you must select the database tables you wish to create in the XML Schema. How to do this is described in the section Select Base Table Information below.

Building a connection string explicitly
If you selected a DB type other than MS Access (in the Select a Source Database dialog), then a dialog appears prompting you to build an ADO connection string:


MS SQL Server : ADO Connection String
Generate a valid connection string by clicking on the build button. Once the connection string is generated click on the next button to proceed.
Build
Next
Cancel

Build the ADO connection string as follows:

1. In the ADO Connection String dialog, click **Build**. This pops up the Data Link Properties dialog.


Data Link Properties
Provider
Connection
Advanced
All
Select the data you want to connect to:
OLE DB Provider(s)
MediaCatalogDB OLE DB Provider
MediaCatalogMergedDB OLE DB Provider
MediaCatalogWebDB OLE DB Provider
Microsoft ISAM 1.1 OLE DB Provider
Microsoft Jet 4.0 OLE DB Provider
Microsoft OLE DB Provider For Data Mining Services
Microsoft OLE DB Provider for Indexing Service
Microsoft OLE DB Provider for Internet Publishing
Microsoft OLE DB Provider for ODBC Drivers
Microsoft OLE DB Provider for OLAP Services 8.0
Microsoft OLE DB Provider for Oracle
Microsoft OLE DB Provider for Outlook Search
Microsoft OLE DB Provider for SQL Server
Microsoft OLE DB Simple Provider
MSDataShape
OLE DB Provider for Microsoft Directory Services
Next >>
OK
Cancel
Help

2. Select the provider (driver) to connect to the DB. (For SQL databases, we recommend that you set up and use **Microsoft OLE DB Provider for SQL Server**. For Oracle, MySQL, Sybase, and IBM DB2 databases, we recommend that you set up and use **Microsoft OLE DB Provider for ODBC Drivers**.) Then click **NEXT>>**. This takes you to the Connection tab.

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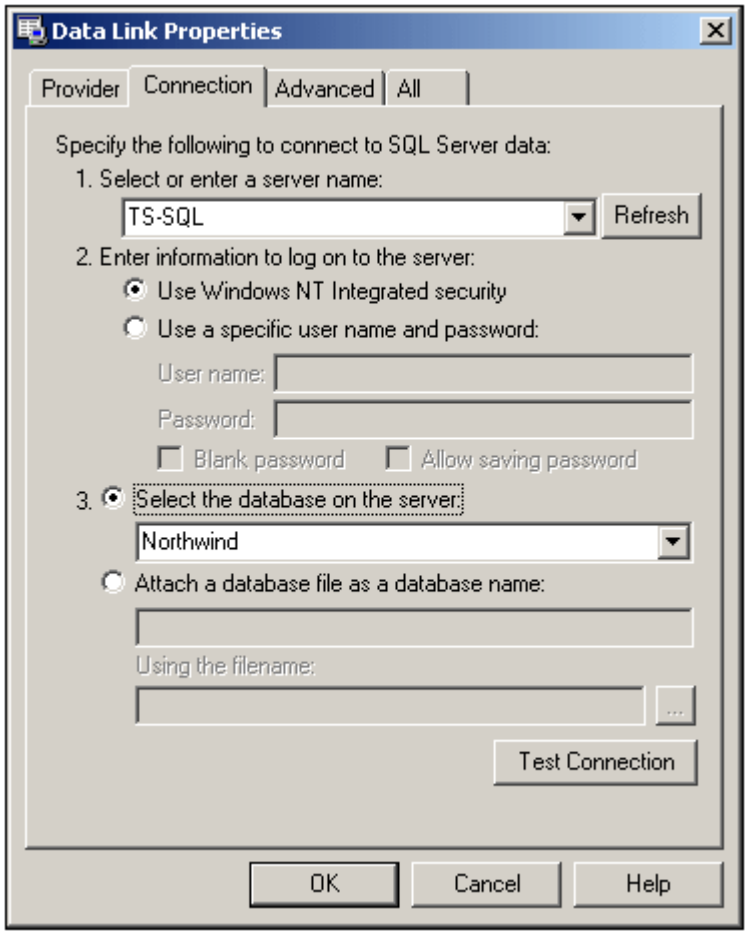
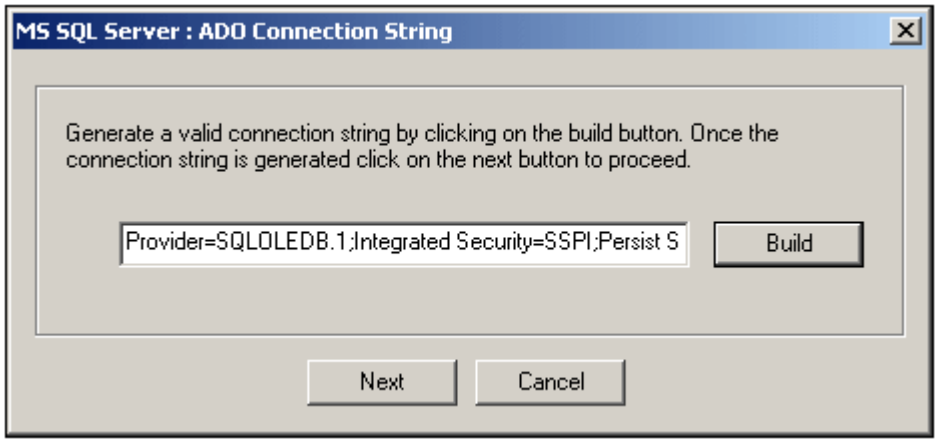


3. Enter the name of the server, server log-on information, and the DB name, all of which are user-specific. If, for the log-on information, you enter a required password, note that **you must check "Allow saving password"** to save the password in the connection string. If a password is required, it must be saved in the connection string. Otherwise the connection will fail.
4. Click **Test Connection** to test whether a connection can be successfully made with the connection string you have built. If a password has been entered, it will be used for testing the connection. However, the password will be saved in the connection string only if the "Allow saving password" option has been checked.
5. If the connection test fails, rebuild the connection string correctly. If the connection test is successful, click **OK** to complete. The connection string you build is entered in the ADO Connection String dialog. A password will be entered in the connection string only if the "Allow saving password" option is checked.

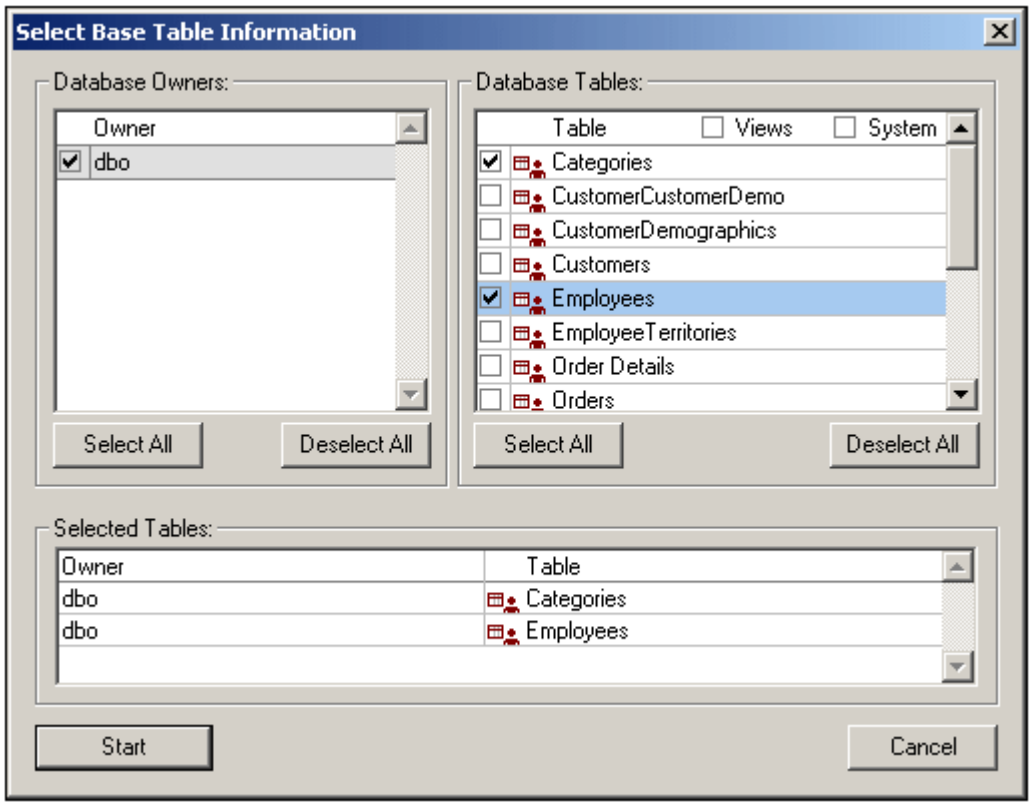

MS SQL Server : ADO Connection String
Generate a valid connection string by clicking on the build button. Once the connection string is generated click on the next button to proceed.
Provider=SQLOLEDB.1;Integrated Security=SSPI;Persist S
Build
Next
Cancel

6. Click **Next**. The connection to the DB is made, and the Select Base Table Information dialog is displayed.

Note: If a password is required to access the DB, it must be saved in the connection string.

Select Base Table Information

The Select Base Table Information dialog is displayed when STYLEVISION connects successfully to a DB. This dialog displays database tables by owner.



To select database tables, do the following:

1. In the Database Owners pane, check the owners (if any), for which you want DB tables displayed in the Database Tables pane.
2. In the Database Tables pane, select the tables you wish to use in the STYLEVISION

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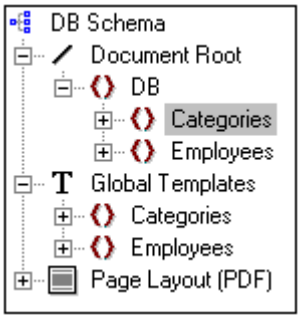
Power Stylesheet. The selected tables are shown in the Selected Tables pane.

3. Click **Start** to generate and load the XML Schema. An XML Schema with a structure corresponding to that of the DB with the selected tables is displayed in the Schema Window.



Note that all the selected database tables are created in the XML Schema as children of the DB document element and as items in the Global Templates list.

After you have connected to the DB and generated the XML Schema, you can use the full range of STYLEVISION features to design a STYLEVISION Power Stylesheet for the DB.

Note:

- You can filter the data that goes into the temporary XML File. (See Edit DB Filter... for details.) Note, however, that using a DB Filter does not in any way alter the XML Schema that was generated from the DB.
- You do not have to specifically assign a Working XML File in order to see HTML and PDF previews. The automatically generated temporary XML file is used for this purpose.

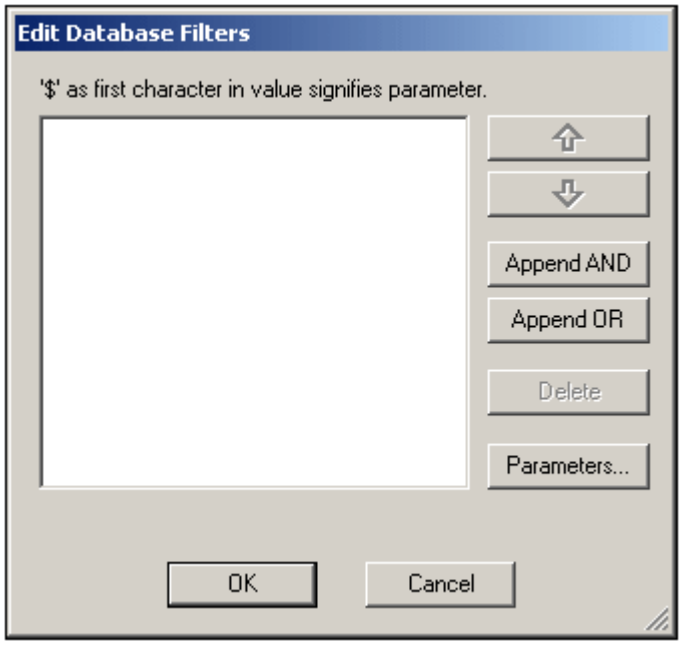
5.12.2 DB Filters

The data that is imported into the temporary XML file from the database can be filtered. The database filter (DB Filter) can be created either within the database itself (if this is supported in your database application), or it can be created within the STYLEVISION Power Stylesheet (SPS file). In the STYLEVISION Power Stylesheet, one DB Filter can be created for each top-level data table in the XML Schema (i.e. for the data tables that are the children of the DB element). Each time a DB Filter is created or modified, the data from the database is re-loaded into the temporary XML file that is generated for the database. In this way, DB Filters help you to keep the XML file down to an optimal size and to thus make processing more efficient.

Note: Using a DB Filter modifies the data that is imported into the XML File. If you save a STYLEVISION Power Stylesheet with a DB Filter, and then generate an XML File from the STYLEVISION Power Stylesheet (via the command line), then the XML File will be filtered according to the criteria in the DB Filter.

Creating a DB Filter

1. In the Design Document or Schema Tree, select the top-level data table element for which you wish to create a DB Filter (either by clicking the start or end tag of the element, or by selecting the element in the schema tree).
2. Select **Edit | Edit Database Filters...**. or click the icon in the toolbar. The following dialog is displayed:



3. Click the **Append AND** or **Append OR** button. This appends an empty criterion for the filter (shown below).

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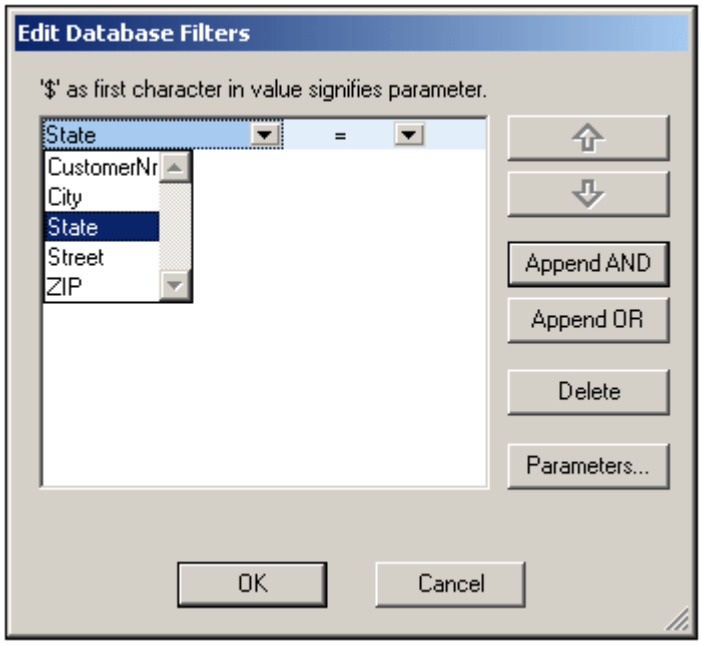


4. Enter the expression for the criterion. An expression consists of: (i) a field name (available from the associated combo-box); (ii) an operator (available from the associated combo-box); and (iii) a value (to be entered directly). For details of how to construct expressions see the Expressions in criteria section below.
5. If you wish to add another criterion, click the **Append AND** or **Append OR** button according to which logical operator (AND or OR) you wish to use to join the two criteria. Then add the new criterion. For details about the logical operators, see the section Re-ordering criteria in DB Filters.

Expressions in criteria

Expressions in DB Filter criteria consist of a field name, an operator, and a value. The **available field names** are the child elements of the selected top-level data table; the names of these fields are listed in a combo-box (see screenshot above). The **operators** you can use are listed below:

`=`	`Equal to`
`<>`	`Not equal to`
`<`	`Less than`
`<=`	`Less than or equal to`
`>`	`Greater than`
`>=`	`Greater than or equal to`
`LIKE`	`Phonetically alike`
`NOT LIKE`	`Phonetically not alike`
`IS NULL`	`Is empty`
`NOT NULL`	`Is not empty`

If IS NULL or NOT NULL is selected, the Value field is disabled. **Values** must be entered without quotes (or any other delimiter). Values must also have the same formatting as that of the corresponding database field; otherwise the expression will evaluate to FALSE. For example, if a criteria for a field of the `date` datatype in an MS Access database has an

expression `StartDate=25/05/2004`, the expression will evaluate to FALSE because the `date` datatype in an MS Access database has a format of `YYYY-MM-DD`.

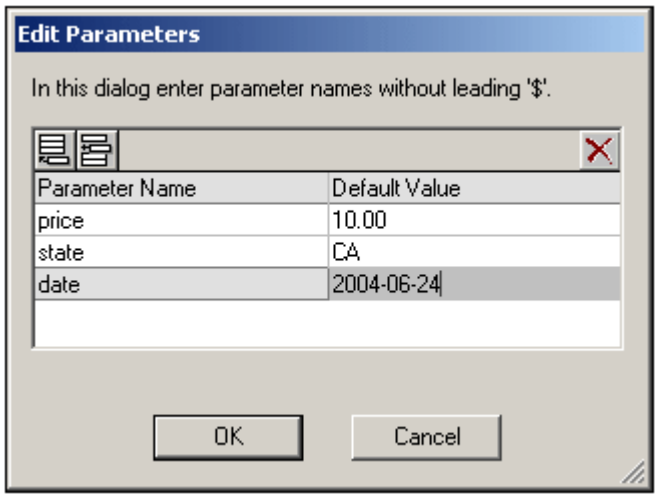
Using parameters with DB Filters (DB Parameters)
You can also enter the name of a parameter as the value of an expression. This causes the parameter to be called and its value to be used as the value of that expression. The parameter you enter here can be a parameter that has already been declared for the stylesheet, or it can be a parameter that you declare subsequently.

Parameters are useful if you wish to use a single value in multiple expressions, or if you wish to pass a value to a parameter from the command line (see STYLEVISION from the command line for details).

To enter the name of a parameter as the value of an expression, type $ into the value input field followed (without any intervening space) by the name of the parameter. If the parameter has already been declared (see Parameters), then the entry will be colored green. If the parameter has not been declared, the entry will be red, and you must declare it.

Declaring parameters from the Edit Database Filter dialog
To access the Edit Parameters dialog (in order to declare parameters), do the following:

1. Click the **Parameters...** button in the Edit Database Filters dialog. This pops up the **Edit Parameters** dialog shown below.



2. Type in the name and value of the parameter in the appropriate fields.

Alternatively, you can access the Edit Parameters dialog and declare or edit a DB Parameter by selecting **Edit | Edit Stylesheet Parameters...**.

Note: The Edit Parameters dialog contains **all** the parameters that have been defined for the stylesheet. While it is an error to use an undeclared parameter in the STYLEVISION Power Stylesheet, it is not an error to declare a parameter and not use it.

After a DB Filter is created for a data table element, that element in the Schema Tree is displayed with the filter symbol, as shown for the `Addresses` element in the screenshot below.

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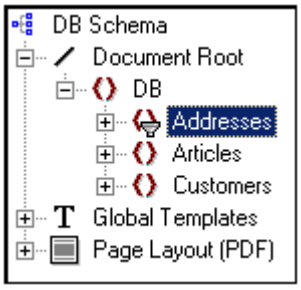
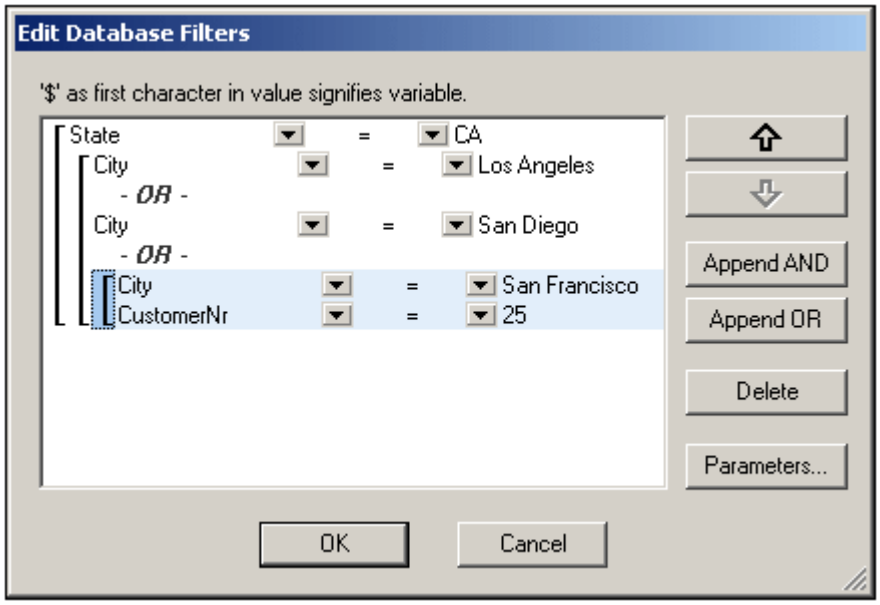


Re-ordering criteria in DB Filters

The logical structure of the DB Filter and the relationship between any two criteria or sets of criteria is indicated graphically. Each level of the logical structure is indicated by a square bracket. Two contiguous criteria or sets of criteria indicate the AND operator, whereas if two criteria are separated by the word OR then the OR operator is indicated. The criteria are also appropriately indented to provide a clear overview of the logical structure of the DB Filter.



The DB Filter shown in the screenshot above may be represented in text as:

```
State=CA AND (City=Los Angeles OR City=San Diego OR (City=San
Francisco AND CustomerNr=25))
```

You can re-order the DB Filter by moving a criterion or set of criteria up or down relative to the other criteria in the DB Filter. To move a criterion or set of criteria, do the following:

- Select the criterion by clicking on it, or select an entire level by clicking on the bracket that represents that level.
- Click the Up or Down arrow button in the dialog.

The following points should be noted:

- If the adjacent criterion in the direction of movement is at the same level, the two criteria exchange places.
- A set of criteria (i.e. criterion within a bracket) changes position within the same level; it does not change levels.
- An individual criterion changes position within the same level. If the adjacent criterion is further outward/inward (i.e. not on the same level), then the selected criterion will move

outward/inward, **one level at a time**.

To delete a criterion in a DB Filter, select the criterion and click **Delete**.

Modifying a DB Filter
To modify a DB Filter, click **Edit | Edit Database Filters...**. This pops up the Edit Database Filters dialog box. You can now edit the expressions in any of the listed criteria, add new criteria, re-order criteria, or delete criteria in the DB Filter. After you have completed the modifications, click OK. The data from the database is automatically re-loaded into STYLEVISION so as to reflect the modifications to the DB Filter.

Clearing (deleting) a DB Filter
To clear (or delete) a DB Filter, select the element for which the DB Filter has to be cleared either in the Design Window or the Schema Tree. (There is one DB Filter for each (top-level) data table element.) Then click **Edit | Clear DB Filter**. The filter will be cleared, and the filter symbol will no longer appear alongside the name of the element in the Schema Tree.

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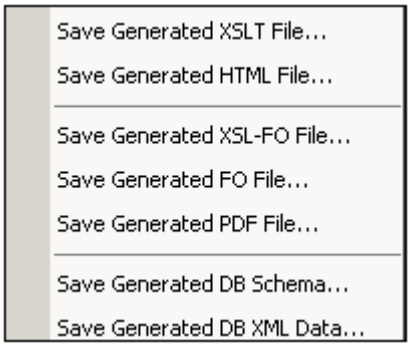
5.12.3 Generating files related to the DB

After you have created a DB-based STYLEVISION Power Stylesheet, you can generate files related to the STYLEVISION Power Stylesheet and DB, and save them.

From within the STYLEVISION GUI

1. In the **File** menu, select the **Save Generated Files...** item. This pops up the following submenu.


Save Generated XSLT File...
Save Generated HTML File...
Save Generated XSL-FO File...
Save Generated FO File...
Save Generated PDF File...
Save Generated DB Schema...
Save Generated DB XML Data...

2. Select the file you wish to generate and save. This pops up the Save As dialog.
3. Browse for the desired folder, enter the desired filename, and click **OK**.

Save generated XSL-FO.

From the command line

From the command line, you can call STYLEVISION so that it generates and saves files associated with a DB-based STYLEVISION Power Stylesheet. You can save not only the XML Schema and XSLT files, but also an XML file with data from the DB, and HTML and PDF output files based on the design in the STYLEVISION Power Stylesheet. For a description of how to use the command line, see STYLEVISION from the command line.

5.13 STYLEVISION from the command line

The command line feature enables you to call STYLEVISION (i.e. the STYLEVISION executable file) from the command line to generate the required output files. STYLEVISION runs silently (i.e. without the GUI being opened), generates the required output files, and closes.

Output files
Using the command line, you can generate one or more of the following files:

- XSLT directly from the specified STYLEVISION Power Stylesheet
- HTML file using the XML and XSLT specified in the STYLEVISION Power Stylesheet or using alternative XML and/or XSLT
- XSLT-for-FO (XSLFO) directly from the specified STYLEVISION Power Stylesheet
- FO file using the XML and XSLT-for-FO (XSLFO) specified in the STYLEVISION Power Stylesheet or using alternative XML and/or XSLT-for-FO (XSLFO)
- PDF file using XML and XSLT-for-FO (XSLFO) specified in the STYLEVISION Power Stylesheet or using alternative XML and/or XSLT-for-FO (XSLFO)
- XML Schema file of a database specified in the STYLEVISION Power Stylesheet
- XML data file of a database specified in the STYLEVISION Power Stylesheet

Syntax
The command line syntax is as follows (names that can vary are indicated in italic; optional arguments are enclosed in square brackets):

`StyleVisionBatch [Stylevision executable] [`*`file`*`.sps] [parameter declarations] [options]`

`StyleVisionBatch`	located in the `\\Altova\STYLEVISION2004` folder
`Stylevision exe`	specify only if your STYLEVISION executable is **not** `stylevision.exe` in the same folder
`file``.sps`	the STYLEVISION Power Stylesheet (`.sps` file) to open
`parameters`	DB Parameters or parameters for the XSLT; must have the form `$paramname=paramvalue.` Multiple parameters must be separated with spaces

Options:

`/FOPBatFile=`*`file`*	set FOP processor batch file
`/InpXML=`*`file`*	set input XML file
`/InpXSLT=`*`file`*	set input XSLT file
`/InpXSLFO=`*`file`*	set input XSLT-for-FO file
`/OutXSLT=`*`file`*	output stylesheet for HTML
`/OutHTML=`*`file`*	output HTML
`/OutXSLFO=`*`file`*	output XSLT stylesheet for FO
`/OutFO=`*`file`*	output FO file
`/OutPDF=`*`file`*	output PDF file
`/OutDBXML=`*`file`*	output XML generated from DB
`/OutDBSchema=`*`file`*	output schema generated from DB
`/help` or `/?`	outputs help at the command line
`/verbose` or `/v`	reports all steps in the process at the command line

Note:

- When `StyleVisionBatch` is called, it looks in the current directory for `stylevision.exe`. If your STYLEVISION executable is named otherwise or located in another folder, use the option to specify the executable.

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- Paths may be absolute or relative and should use backslashes.
- Commands, paths, and folder and file names are case-insensitive.
- If the SPS file is specified, the Working XML File associated with it and XSLT generated from it will be used to generate output; therefore no input XML or XSLT file is required. If, however, the SPS file is not specified, an input XML file and input XSLT file must be specified as options. An input XML File must also be specified if the SPS file does not have a Working XML File assigned it it. For output from a DB, the SPS must be specified.
- Parameter declarations refer to parameters in the XSLT. Parameter names and values are case-sensitive. If the STYLEVISION Power Stylesheet is DB-based and has a DB Filter which uses parameters, the XML generated from the DB will be appropriately filtered, using parameter values you specify at the command line. Each parameter declaration on the command line must be prefixed with a $, and, if multiple parameters are used, they must be separated from each other with a space.
- No default output is specified, so you must specify the required output.
- If you specify only the output file (no XML or XSLT), the Working XML File or DB specified in the STYLEVISION Power Stylesheet is used for the source XML and the required XSLT is generated from the STYLEVISION Power Stylesheet (SPS file). Any temporary files that are created are deleted at the end of the processing.
- The `/InpXSLFO` option allows you to specify an external XSLT-for-FO file as an input option.
- In order to generate PDF output, the `/OutPDF` option must be specified. If the FOP executable file has not been set in STYLEVISION (with the **Tools | XSL-FO Options** command), then the `/FOPBatFile` option must be specified also. If a FO file is generated by the command, it is temporary and will be deleted after processing has been completed.
- To generate PDF from an FO (`.fo`) file, call the FO processor directly from the command line; there is no need to use STYLEVISION for this.
- The `/verbose` option provides a detailed report of all steps carried out during the processing of the command.

Chapter 6

Tips

6 Tips

This section lists tips that enable you to use STYLEVISION features to advantage. It also points out some common errors. The section is divided into sub-sections according to function. Tips and commonly made errors for each heading are discussed together. For more information about issues raised in this section, refer to the relevant sections in the STYLEVISION How To Use section.

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6.1 The schema for the STYLEVISION Power Stylesheet

XML Schema and the Root Template
If you use an XML Schema (and not a DTD) as your schema, you will very likely have declared more than one global element. In such a case it is not possible for STYLEVISION to determine which one of these global elements it should consider the document element (top-level element). Consequently, the Root Template will be empty and the global elements will only appear in the Global Templates list. In order to enable STYLEVISION to select a document element, assign a Working XML File (**File | Assign Working XML File**). The document element of the Working XML File will then be used as the document element in the Root Template.

Modifying your schema
It is best to finalize your schema before you start building a STYLEVISION Power Stylesheet (SPS). Sometimes, however, you may not be able to avoid modifying your schema after having built the STYLEVISION Power Stylesheet. If you do change your schema after building the STYLEVISION Power Stylesheet, the following effects must be considered:

- When an XML file is created or edited in Authentic View with a STYLEVISION Power Stylesheet that references a modified schema, then Authentic View will validate the XML file against the modified schema. If the templates in the STYLEVISION Power Stylesheet are still valid according to the modified schema, then the XML that is created will be valid and there should be no problem. If, however, a template in the STYLEVISION Power Stylesheet uses an element or structure which is not valid according to the modified schema, then an error results. To prevent such an error from occurring, you should change the STYLEVISION Power Stylesheet so that it is valid according to the modified schema (see next point).
- When a STYLEVISION Power Stylesheet based on a modified schema is opened in STYLEVISION, the modified schema appears in the Schema Window and any template that uses elements or structures which have been modified may now be incorrect. STYLEVISION will indicate this. To rectify this situation, you have two options:
    1. If the change to the element or structure is minor, or if the STYLEVISION Power Stylesheet does not use complex template rules, you could change the incorrect template rules.
    2. If the schema modifications are too complex or too many, or if the STYLEVISION Power Stylesheet uses complex template rules, it is preferable—and may even be necessary—to build the STYLEVISION Power Stylesheet from scratch all over again.

Renaming the schema or changing its location
If you rename your schema or change its location, you can open the STYLEVISION Power Stylesheet in XMLSPY 2004 or a plain-text editor, and change the value of the `schemafile` attribute of the `structure` element to specify the changed name or location of the schema file.

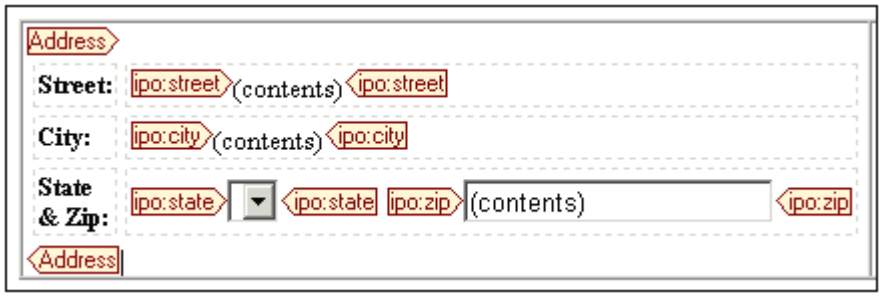
```
<structure version="2" schemafile="NanonullOrg.xsd"
   workingxmlfile="NanonullOrg.xml" templatexmlfile="">
```

Importing schemas
The schema on which the STYLEVISION Power Stylesheet is based can import other schemas. If you import schemas, pay attention to rules that govern the application of namespaces. See Namespaces in the How To section of this documentation.

6.2 Handling components in the Design Document

A component in the Design Document can be a node (including text nodes), data-entry device, placeholder, table, image, etc (see Document design process). Learning to handle components in the Design Document well will give you greater flexibility in using STYLEVISION and will enable you to create better STYLEVISION Power Stylesheets. Given below are a few tips for handling components.

Placing schema nodes correctly
When you drag nodes from the Schema Window and drop them into the Design Document, place them in a structure that is efficient. In the example below, a static table is created **within** the `Address` element tags because all content of the table cells are planned to be children of the `Address` element.



Do not create the table outside the `Address` element and then drag the children of `Address` into the table cells. In the example shown below, the context node for the static table is not the `Address` element but the parent of `Address`.

As a result, the `Address` element is repeated in the XPath expressions of each table-cell node. The processing of the nodes is slowed down and the Design Document becomes harder to read. Such constructs should, therefore, be avoided.

Moving components in the Design Document
You can move or copy any component from one part of the Design Document to another. You can do this using the following mechanisms:

- Drag-and-drop (move component)
- Cut-and-paste (move component)
- Copy-and-paste (copy component)

To move a component, first select it (either by clicking on it (in the case of nodes, for example) or by marking it (static text, for example)). Then, either drag it to the new location (move), or cut-and-paste it to the new location (move), or copy-and-paste it to the new location (copy).

Moving complex components, such as tables
You can even move or copy complex components such as a table and all its contents, a list, an auto-calculation, or a conditional template.

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For example, to move a static table, mark the table from one whitespace before the table to one whitespace after the table, and drag (or cut/copy-and-paste) the static table to the new location. In the case of dynamic tables, select either tag of the element created as a table (these tags are located directly before and after the table), and drag (or cut/copy-and-paste) the selected table to the new location.

Moving dynamic content (nodes)
When you move or copy dynamic content, the XPath originally used to locate the node may be invalid in another location because the context node in the new location is different. In this case, an error message to this effect will appear, and the node that has been moved to the new context will have a red strikethrough in its tags:

To correct such an error, drag the correct context node to an adjacent location as shown here:

Then drag the descendant node into the context node, as below:

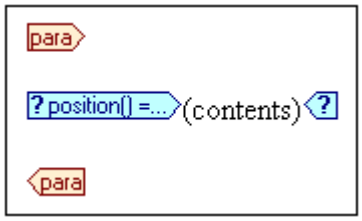
The red strikethrough disappears, indicating that the XPath in this location is now correct. Delete the `(contents)` placeholder of the context node to complete the operation (since you do not want its content to appear separately).

6.3 Selective processing of siblings

Function
An important requirement while selecting from among sibling elements of the same name is the ability to select by position. For example, you may wish to output only the first of several `para` elements (equivalent to the XPath `//para[1]`). In your STYLEVISION Power Stylesheet, the way to do this is by using a **conditional template** and the **`position()` function**. (Remember: a predicate of the form `//para[1]` is shorthand for `//para[position()=1]`.)

Usage
To select and process a specific sibling from among several of the same name, do the following:

1) Create the conditional template around the `(contents)` placeholder of the element you want to output.
2) The conditional template can occur anywhere in the document. However, you must ensure that the context node for the condition is the element for which you want to make the predicate. So if you wish to select the first `para` element, then the context node for the condition must be `para`. This means that the condition must be created directly within the `para` element tags.
3) For the condition, create an XPath expression that checks the position of the element, for example: `position()=1`. The Design Document will look like this:



The above steps do the following:

- For each `//para` element, check whether the position is 1.
- If the position is 1, then output the contents of this `para` element.
- If the position is not 1, then do not process this `para` element.

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6.4 XSL-FO and PDF issues

Fonts
For font-related issues, see PDF Fonts.

Tables
All table cells in the PDF output are assigned a default padding of 3pt. To replace this value globally for all cells, specify the required cellpadding value in the Table tab of the Table Properties dialog. To change the cellpadding of individual cells, or of separate padding directions of individual cells, place the cursor in the relevant cell and specify a value for the required cellpadding attribute in the Layout tab of the Block Style window.

To quickly specify or change the dimensions of tables, rows, and columns, drag the relevant borders as required. However, if you require PDF output, it is better to specify the individual width measures so that they add up correctly to the required table width on the page.

Pagination

- One master page is defined by default. (The master page defines margins, header extents, page-numbering formats, etc.) If **Multiple Pages | Mirror Margins** are specified in the PDF Page Properties dialog, then two master pages are created instead: an even-page-master and an odd-page-master. The optional cover page is created as a separate master page, but takes the page dimensions of the default master page. Definitions for additional master pages are not supported.
- The default page sequence consists of the optional cover page plus the default master page (which repeats till the content is exhausted). If Mirror Margins is specified, the page sequence consists of the optional cover page plus the repeatable sequence of odd and even page masters (repeating till the content is exhausted). Either of these sequences is selected with the Multiple Pages option. Creating any other sequence is not supported.
- Specifying the number of columns on a page is not supported. All pages are one-column wide.

Inline properties

- The document font can be specified by clicking the document element and assigning a font-family value in the Text tab of the Text Style window. This value is passed to each node (if Full Usage of FO standard is selected in the **Tools | XSL-FO options** dialog). Default is Helvetica or Arial MT depending on the Acrobat PDF Reader version used. See PDF Fonts for details.
- Hyperlinking from within the PDF is not supported.

6.5 Manually editing generated XSLT

Occasionally, you may wish to manually edit your XSLT stylesheets. Typically this would be because you need some processing that is not currently available in STYLEVISION but is possible with some XSLT construct. In such cases, you can open the generated XSLT stylesheet in an XML editor and edit it as required.

However, note the following:

- If you manually edit a generated XSLT and then need to modify your STYLEVISION Power Stylesheet, then you will need to generate the XSLT again and re-do the manual edits.
- Manually editing the STYLEVISION Power Stylesheet itself to include XSLT features not supported by STYLEVISION will not enable these XSLT features in Authentic View. These features should only be inserted in the generated XSLT, which can then be used separately to transform an XML document.

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6.6 Numbering elements recursively

You can number elements recursively by using Auto-Calculations. This helps you to get the number of an element in the form X.Y.Z. As an example, take a schema structure in which Elements AA have chidren BB, which in turn have children CC. To get the number of any CC element, use the following three Auto-Calculations (with the CC element as the context node). Concatenate the three Auto-Calculations with suitable separator characters so as to get a format like X.Y.Z.

```
count(ancestor::AA/preceding-sibling::AA)+1
count(parent::BB/preceding-sibling::BB)+1
count(preceding-sibling::CC)+1
```

The first Auto-Calculation gives the number of the ancestor AA element of the current CC element in the context of the parent of AA. The second Auto-Calculation gives the number of the parent BB element in the context of its parent AA. The third gives the number of the current CC element in the context of its parent BB.

You could use the same strategy for the elements AA, BB, or any descendant elements of CC.

Chapter 7

Troubleshooting

7 Troubleshooting

Given below is a list of commonly encountered problems, their causes, and suggested solutions.

- *When an XML Schema is loaded into STYLEVISION, the Root Template in the Schema Window is empty.*
  Cause: There is more than one global template in the schema. So it is not clear which one is to be used as the Root Element.
  Solution: If you have an XML file which has as its root element the element you require, assign this XML file as the Working XML File. Once you do this, it becomes clear which element is the root element, and the schema will appear in the Schema Window. If you do not have such an XML file, create a rudimentary one with the required element as the root element. Save it and assign it as the Working XML File. See The schema for the STYLEVISION Power Stylesheet.

- *No Global Templates are displayed in the Global Templates list in the Schema Window when the schema is loaded.*
  Cause: You are using an XML Schema (not a DTD), and there are no global elements in your XML Schema.
  Solution: If you wish to use global templates, you must have the required elements created as global elements in your XML Schema. (This is not a requirement for DTDs; all elements in a DTD are displayed in the Global Templates list.) In the XML Schema, create the required elements as global elements and reference them where they are required. See Global Templates.

- *The Block Style Window is disabled.*
  Cause: The currently selected component in the Design window is not a block-type component.
  Solution: All components in the Design Window are originally inline components. No component is inherently a block component. In order to make a component a block component, you have to explicitly specify a block-type formatting for the component. Do this by selecting the component in the Design Window and assigning it a Predefined Format (**Insert | Format...** or select an option in the Predefined Format combo box in the toolbar). All predefined formats except `Normal` are block type. See Formatting the components.

- *In the output, multiple paragraphs run on and are displayed together as a single paragraph instead of as multiple paragraphs.*
  Cause: In the Design Document, the node—as opposed to the `(contents)` placeholder—has been assigned the predefined `Paragraph (p)` format.
  Solution: Select the node and assign it a predefined format of `Normal`. Then select the `(contents)` placeholder and assign it a predefined format of `Paragraph (p)`. See Formatting the components.

- *In the PDF output, a table does not fit within the page, or its column widths are not as expected.*
  Cause: Column widths for all columns have not been specified, or column widths do not add up to 100% (or actual width in length units of page).
  Solution: Place the cursor in the first column of the table, select Table | Table Properties, select the Column tab, and enter a width in percentage or length units. Repeat for each column. See Inserting a dynamic SPS table and Inserting a static SPS table.

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- *An Auto-Calculation does not update the XML node specified in the Auto-Calculation dialog.*
  Cause: (1) The XPath specified for the Auto-Calculation does not use a value from the XML file and/or (2) none of the nodes used in the Auto-Calculation XPath has had its XML value modified. In other words, in order for a node in the XML file to be updated with the result of an Auto-Calculation, the XPath used in the Auto-Calculation (i) must use at least the the value of one node in the XML file as an operand in the calculation, **and** (ii) at least one of those XML values (operated on in the Auto-Calculation XPath) must be modified in Authentic View.
  Solution: Force the Authentic View user to modify the value of a node used in the XPath for the Auto-Calculation. You could do this explicitly with a message to the user (via **Authentic Node Settings**) or implicitly by creating an XPath for the Auto-Calculation that uses a node which must be updated. If you are using a static value as the XPath of your Auto-Calculation, such as a string value (for example, `string("www.altova.com")`), replace the string with a locator expression (such as `company/url`, where `url` is the node that contains the required value. However, the value of the XML node (e.g. `url`) will have to be modified in Authentic View for the Auto-Calculation function to pass the result to the XML node that is to be updated). See How to use Auto-Calculations.

- *XML tables do not display in HTML and PDF output.*
  Cause: No (global) template has been defined for the XML table element.
  Solution: Since it cannot be known where in the XML document the user will insert an XML table, you must use a global template for the XML table element. This global template must be added manually to the XSLT stylesheet you generate from the STYLEVISION Power Stylesheet.

- *In Authentic View, optional child elements are listed in a specific order (as `add child1`, `add child2`, etc) even though the schema specifies that child elements can occur in any order.*
  Cause: Templates for the child element/s have been specified within the template for the parent element.
  Solution: Delete the templates for the child element/s in the parent element. Define the template for the parent element to contain just the (contents) placeholder, and define Global Templates for the child elements.

Chapter 8

User Reference

8 User Reference

This section contains a complete description of STYLEVISION windows and menu commands. It is divided into the following broad parts:

- A description of symbols, icons, Text and Block Style Windows, and options for Formatting.
- All menu commands
- Context menus

While the User Reference section contains a description of individual commands, the mechanisms behind various STYLEVISION features are explained in detail in the How To Use section. For complex issues, refer also to the Tips and Troubleshooting sections

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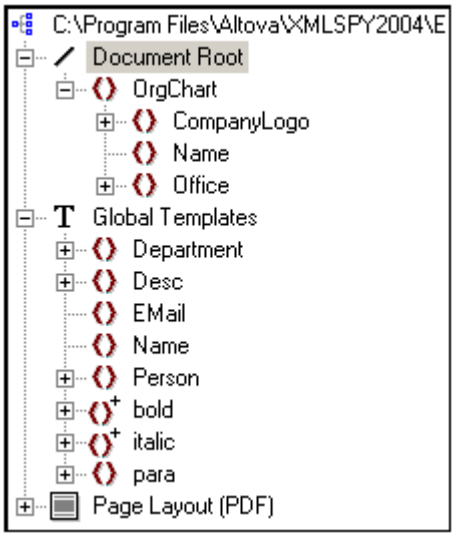
8.1 Symbols and icons

The following symbols and icons are used in STYLEVISION.

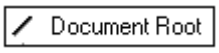
Schema Window symbols and icons
The Schema Window contains three parts, each of which is displayed as a tree: the Schema; Global Templates; and Page Layout (PDF).



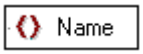
When you click on a component entry in any of the three trees, that component entry is highlighted and the Design Window displays and highlights that tree or component.

Schema tree

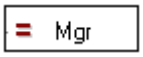
Schema name and folder.



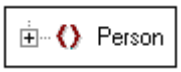
The document root (which is not the same as the document element, and occurs above it).



Element.



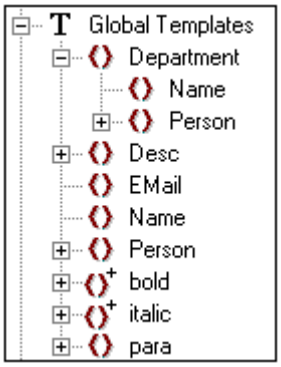
Attribute.



Element with child elements. Double-clicking the element or the +/- symbol to its left causes the element to expand/collapse.

DB Filter applied. Applies only to top-level data table elements in the schema tree.

Global templates
The entries in the global templates list are the global elements in an XML Schema or all elements in a DTD.

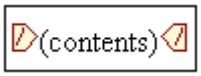


Clicking an entry creates a default global template in the STYLEVISION Power Stylesheet. A + sign appears on the right of the element symbol

indicating that a global template for this element now exists. The default template (which merely processes the element's contents (with an `xsl:apply-templates` rule)) is now displayed in the Design Window, where it can be modified. If the global template for an element is removed (by right-clicking the global template entry and pressing Remove Global Template), the + sign disappears.

Page Layout (PDF)
When a page layout has been defined for a page component, that component is displayed in the Page Layout list with a + sign in front of it.

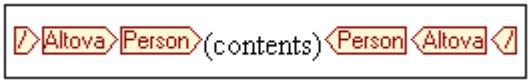
Design Window symbols and icons
Element and attribute symbols can be moved around using **drag and drop** in the Design window. The standard Cut, Copy, and Paste commands can also be used. The following symbol and icons are displayed in the Design Window



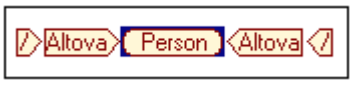
Root element tags.

`(contents)`

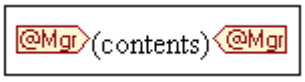
Placeholder for XML content of that element. It corresponds to the `xsl:apply-templates` rule. You can select the placeholder and apply formatting to it; this formatting will be applied to the XML content of the element. You can also delete the `(contents)` placeholder.



Start and end tags of elements. An element inserted from the schema tree is inserted with the correct ancestors relative to the location into which it is dropped.



A contracted element tag. Tags can be expanded/contracted by double-clicking.



Attribute tags contain the @ prefix.

An input field. The width can be adjusted by dragging the right

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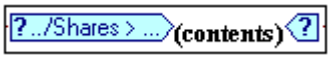
border.



Conditional template tags are blue and contain a question mark.

An Auto-Calculation is indicated by an equals-to sign followed by the first characters of the XPath expression used for the Auto-Calculation.

Toolbar items

Most toolbar items are intuitive and display a tooltip when you mouseover. Some are specific to STYLEVISION.

Creates a new STYLEVISION Power Stylesheet from a database.

Edit a DB Filter. Brings up the Edit DB Filter dialog for the selected data table and allows you to edit a DB Filter.

Clear DB Filter. Clears criteria in the DB Filter of the selected element.

Save Authentic XML Data. Saves modifications you make to the Working XML File in Authentic Preview.

Edit Stylesheet Parameters. Brings up the Edit Parameters dialog, in which you can declare global parameters for the stylesheet.

Auto-add Date-picker. If this command is toggled on, the date-picker will be inserted when a node of of datatype `xs:date` is dropped into the Design Document.

Authentic Node Settings. Brings up the Authentic Node Settings dialog forthe selected node.

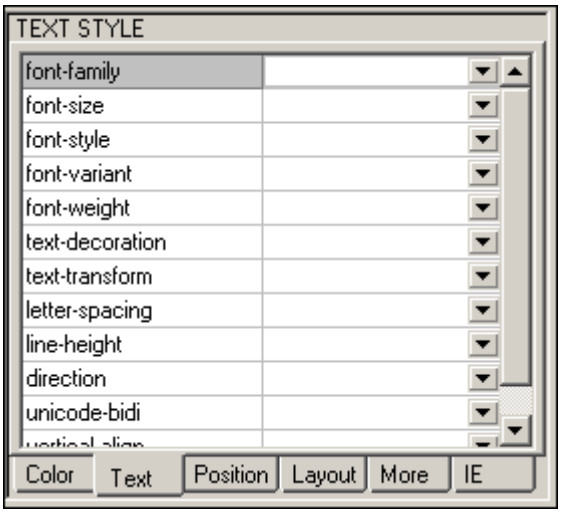
The Pre-Defined Format combo box. Selecting a format from this drop-down box applies it to the selected element. All content, when initially created, is assigned the Normal format by default.

Insert Static SPS table. See Tables for more details on the various types of tables available in STYLEVISION.

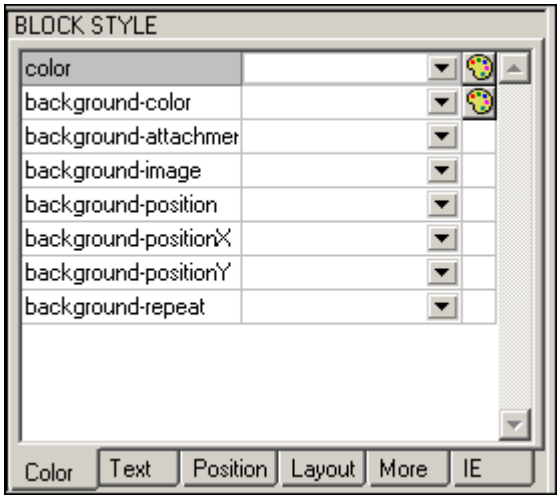
Also see: STYLEVISION interface

8.2 Text and Block Style Windows

Text Style Window
The Text Style window allows you to apply formatting to text and to text components (such as the `(contents)` placeholder and data-entry devices). To apply text formatting, select the text or text component to be formatted and enter a value for the required property.



Block Style Window
The Block Style window allows you to apply formatting to block components. Block components include paragraphs, headings, tables, lists, etc. Any component that is not a block component (i.e. it is an inline component) can be made into a block component by assigning it a pre-defined format. When a block component is selected, the Block Style window is enabled; otherwise it is grayed out.



Note:

- When a property is assigned in the Block Style window, it applies to the entire block. For example, if a table is selected, and a text property is assigned in the Block Style window, then that text property applies to text in all the cells of the table. If you wish to have some property apply to the text of one particular cell only, you must select that text and assign the required property in the Text Style window.
- The Block Style Window is also useful to specify formatting properties fot table cells that

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are not available in the Table Properties dialog. Place the cursor in the required cell, and specify a value for the required property in the Block Style Window.

Also see: Document design process and Formatting

8.3 Formatting

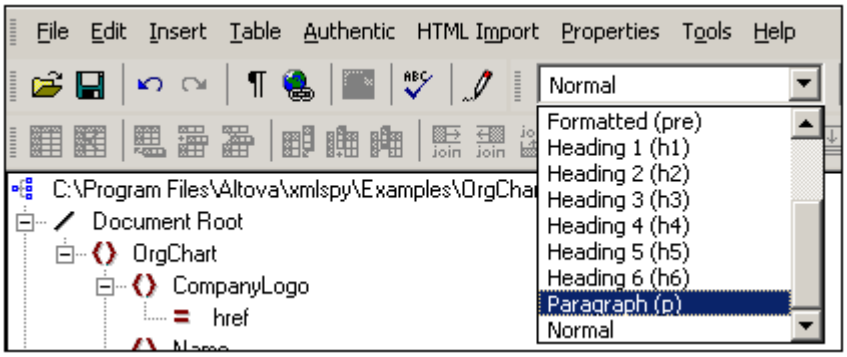
Formatting can be applied to a selected component in one of, or any combination of, the following three ways:

- By selecting a pre-defined format
- By specifying values for Block Style properties
- By specifying values for Text Style properties

To assign formatting to a component, select it, and then use one or more of the three methods listed. Each method is explained below.

Pre-defined formats
STYLEVISION has a number of pre-defined formats, the properties of which you cannot change. When you apply a pre-defined format to a component, the formatting markup is created **around the selected component**. When an element or attribute is created in the Design Document, it is assigned the Normal format by default. Any pre-defined format must be explicitly assigned.

Pre-defined formats can be assigned by clicking **Insert | Format**, and then the required format, or by selecting the required format from the Format drop-down list in the Toolbar (shown below).



Note: Assigning a pre-defined format to a component makes that component a block component.

The pre-defined formats used in STYLEVISION have either one or both of the following two components:

- a text-formatting component
- a spacing component.

For example, the pre-defined `para (p)` format has a spacing component only; it puts vertical space before and after the selected component, and does not apply any text formatting. On the other hand, the pre-defined `Heading 1 (h1)` format has both a text-formatting component and a spacing component.

The following points about pre-defined formats should be noted:

- The spacing component of a pre-defined format applies for any type of STYLEVISION Power Stylesheet component, but the text formatting only if it can be applied. For example, if you select an image, and apply a pre-defined format of `Heading 1 (h1)` to it, then the spacing component will take effect, but the text-formatting component will not.
- The text-formatting component of pre-defined formats does not apply to data-entry devices.

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- Only one pre-defined format applies to a component at any given time.

Block Style properties
Block style properties are assigned in the Block Style window. When an element/attribute is created, it is created with the default pre-defined format of `Normal` and is not a block. To make the element/attribute a block, assign it any pre-defined format other than `Normal`.

Caution: When applying block styles within a table cell, remember that the table cell is a block. It may be that the component in the table cell is also a block (you can find out by checking its pre-defined formatting). If the component is also a block, be sure to select the correct block (i.e. table-cell block or component block). Note that you can also apply table formatting through the Table Properties dialog.

Tip: You do not need to make a component a block in order to apply certain block styles (such as spacing) to it. You can apply such block styles in the Text Style window.

Text Style properties
Text style properties are assigned in the Text Style window, and the properties are assigned as **inline** markup surrounding the component in the markup of the output. Text style properties, therefore, override block style properties and pre-defined formats if there is a conflict.

Formatting conflicts
If there is a formatting conflict, i.e. a formatting property is defined using more than one of the above methods, the conflict is resolved using the same principle used in Cascading Style Sheets: inline markup has priority over higher-level markup. The priority for the different methods is as follows:

1. Text Style (since this is inline markup)
2. Block Style (since this applied to the block)
3. Pre-defined format (the formatting is inherent in the element name, e.g. `h2` and `div`)

The Return key and pre-defined formats
In Authentic View, when the Return key is pressed within the contents of an element having a pre-defined format, the current element instance and its block are terminated, and a new element instance and block are inserted at that point. This property is useful, for example, if you want the Authentic View user to be able to create a new element, say a paragraph-type element, by pressing the Return key. To obtain this behavior in Authentic View, you would have to assign the `(contents)` placeholder a pre-defined format of `Paragraph(p)`.

Removing pre-defined formats
To remove a pre-defined format, select the component with the pre-defined format you want to delete, and change the pre-defined format to `Normal`. If the pre-defined format has been inserted at a non-node location, then when you place the cursor at this location the selected pre-defined format will be shown in the Pre-defined Format combo box. Change this option to `Normal`.

Also see: Document design process, Text and Block Style Windows, and Input Formatting.

8.4 File

The **File** menu contains commands for working with STYLEVISION Power Stylesheets and related files. Some of these commands, such as **Open** and **Save** will be familiar from other Windows software products.

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8.4.1 New...

The **New...** command allows you to create a new STYLEVISION Power Stylesheet or SPS document from a **schema** (i.e. an **XML Schema** or **DTD**). The schema is loaded into the Schema Window in a tree form. The **Document Element** or Root Element is created immediately below the **Document Root**. After the schema is loaded, you can start designing the STYLEVISION Power Stylesheet by dragging and dropping elements from the Schema Window into the Design Window.

Creating the STYLEVISION Power Stylesheet from an XML Schema

- If there is more than one global element in the XML Schema, then the Document Root will be empty. This is because it is not known (to the application) which one of the global elements should be used as the Document Element. To indicate this to the application, assign a Working XML File (**File | Assign Working XML File**), which is based on the same XML Schema, to the STYLEVISION Power Stylesheet. As soon as you do this, the Document Element of the XML file is selected as the Document Element of the STYLEVISION Power Stylesheet, and the schema tree is displayed in the Schema Window. If you do not have a Working XML File handy, create a rudimentary XML document with the desired Docment Element.
- Only elements defined as global elements in the XML Schema are created in the Global Templates list in the Schema Window.

Creating the STYLEVISION Power Stylesheet from a DTD

- A valid DTD must define a single Document Element. So, if you create a STYLEVISION Power Stylesheet from a DTD, the Document Element is known and a schema tree is displayed without you having to assign a Working XML File.
- All elements defined in the DTD are created in the Global Templates list in the Schema Window.

Note:

- If your schema is not well-formed or is invalid, you may get an error message when you try to load it. In this case, open the schema and try to resolve the problem in it.
- Only one file can be open at a time in STYLEVISION. A newly opened file replaces the previously opened file. If you have not saved changes to the previously opened file you will be prompted about whether you wish to save your changes or not.

8.4.2 New from DB...

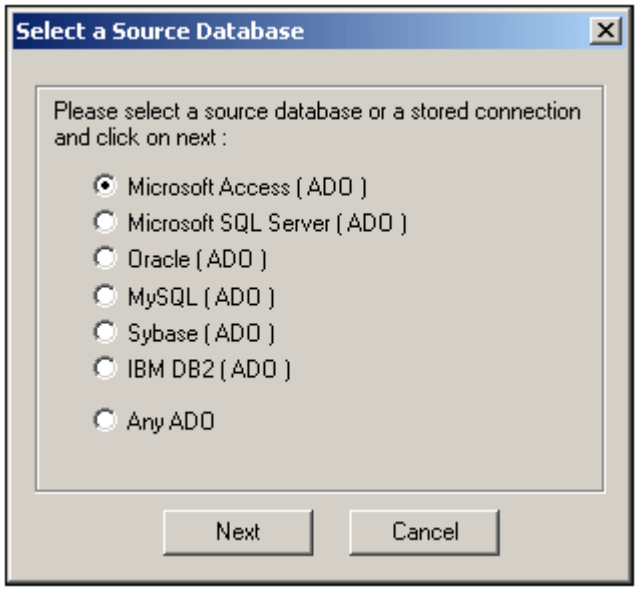
This command allows you to create a STYLEVISION Power Stylesheet (SPS file) **for a database (DB)**. An XML Schema based on the DB structure is generated and displayed as a tree in the Schema Window. An element extraneous to the DB, called DB, is created as the Document Element, and the DB structure is created within this Document Element. You will be prompted to select which tables from the database you wish to import (in the Select Base Table Information dialog). The database tables you select will be created in the XML Schema as children of the DB element and also as items in the Global Templates list.

Setting up a STYLEVISION Power Stylesheet from a DB consists of two steps:

- Browsing for the DB file (if it is a MS Access DB), or building a **connection string** (all other DBs except MS Access). Note that **only ADO connections are supported**. This is because ADO's shape command support enables data to be generated hierarchically.
- Selecting the **Base Table information** (which enables you to select what tables from the database to import). The temporary XML Schema that is generated and the XML file that is created will be based on the selected data tables.

Creating a new SPS from a DB
To create a new STYLEVISION Power Stylesheet from, and for, a DB, do the following:

1. Click **File| New from DB**. The following dialog is displayed:


Select a Source Database
Please select a source database or a stored connection and click on next :
Microsoft Access (ADO)
Microsoft SQL Server (ADO)
Oracle (ADO)
MySQL (ADO)
Sybase (ADO)
IBM DB2 (ADO)
Any ADO
Next
Cancel

2. Select the source DB type and click **Next**. If you selected a DB type of MS Access, then a dialog appears in which you can browse for the DB. If you selected any other DB type option, a dialog appears prompting you to build a connection string (see Connect to a DB and set up the SPS for details about building a connection string). After you have selected the MS Access DB or built a connection string to the DB, click **Next**.
3. The next dialog is the Select Base Table Information dialog (shown below), which lists the data tables in the selected DB by owner.

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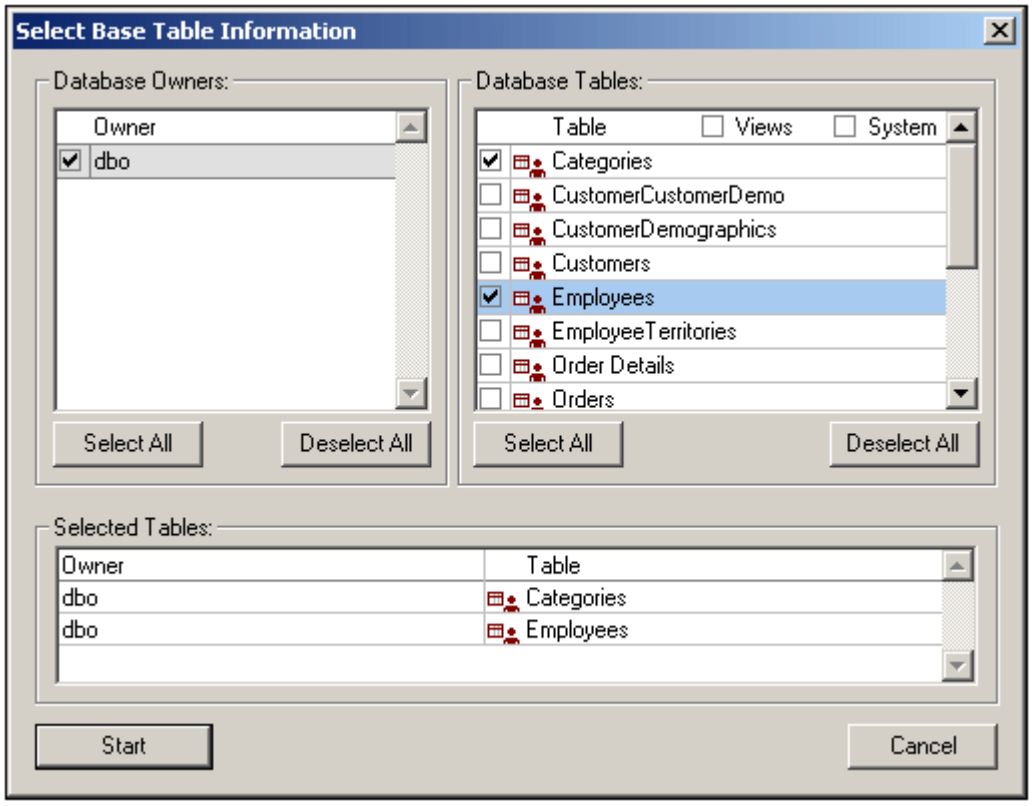

4. Select the database owner, if any. This causes a list of data table belonging to that owner to be displayed in the Database Tables pane.
5. In the Database Tables pane, select the DB tables that you wish to include in the schema. These tables are displayed in the Selected Tables pane.
6. Click **Start**. An XML Schema is created, with the selected tables as children of the document element DB. The schema is displayed in the Schema Window. The Global Templates list also contains the selected DB tables.

You can now start designing the STYLEVISION Power Stylesheet. A temporary XML File is created each time either the HTML or PDF Preview tab is clicked. The XML file is structured according to the generated XML Schema and contains data from the selected DB tables.

Note

- Data input to the DB via Authentic View is not supported. Consequently, the Authentic Preview tab of STYLEVISION is automatically disabled when an STYLEVISION Power Stylesheet based on a DB is created or opened.
- Only one file can be open at a time in STYLEVISION. A newly opened file replaces the previously opened file. If you have not saved changes to the previously opened file you will be prompted about whether you wish to save your changes or not.

8.4.3 Open Design...

The **Open Design...** command allows you to open a STYLEVISION Power Stylesheet (SPS file). The familiar Open dialog of Windows systems is opened and allows you to select a `.sps` file type.

If a Working XML File was assigned to the STYLEVISION Power Stylesheet during a previous session, then the Authentic Preview will be also be enabled. Otherwise you will have to assign a Working XML File in order to enable Authentic Preview.

Note

- Only one file can be open at a time in STYLEVISION. A newly opened file replaces the previously opened file. If you have not saved changes to the previously opened file you will be prompted about whether you wish to save your changes or not.
- The Authentic Preview tab option is not supported for STYLEVISION Power Stylesheets based on databases, and is not displayed for these if the STYLEVISION Power Stylesheet you open is based on a DB-related schema, then the Authentic Preview is automatically disabled.

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8.4.4 Import HTML File...

The Import HTML File... command allows you to import an HTML file into STYLEVISION. You can then convert this HTML file to an XML file in STYLEVISION. How one does this is explained in the HTML to XML conversion section of this documentation.

8.4.5 Assign Working XML File...

The **Assign Working XML File** command assigns an existing XML file to the currently open STYLEVISION Power Stylesheet (SPS file). The name of the Working XML File (including its path) is displayed in the title bar of STYLEVISION.

The Working XML File must conform to the same schema that is used for the STYLEVISION Power Stylesheet. It is used to provide the Authentic Preview and HTML and PDF previews of the output you get using the generated XSLT stylesheets (see XSLT and STYLEVISION Power Stylesheets and Uses of STYLEVISION Power Stylesheets). Assigning a Working XML File is also the only way to resolve ambiguity about which global element in an XML Schema STYLEVISION should select as the Document Element (see File | New...). You will not be able to see an Authentic Preview or HTML or PDF Preview without assigning a Working XML File. If a Working XML File has not been assigned, and you click any preview tab, you will be prompted to select a Working XML File.

Working XML File and databases
If your STYLEVISION Power Stylesheet is related to a database, then the data from the database is used in the HTML and PDF previews. The Assign Working XML File... command is disabled.

Changing the Working XML File
To change the Working XML File, click **File | Assign Working XML File**, select the new Working XML File. The new Working XML File is assigned. Save the STYLEVISION Power Stylesheet if you want to keep the change.

Unassigning the Working XML File
Open the STYLEVISION Power Stylesheet in an XML editor, such as XMLSPY 2004, or a plain text editor, such as Notepad. The root element of the STYLEVISION Power Stylesheet is `<structure>`. Delete the contents of the `workingxmlfile` attribute of `structure`, so that the attribute has an empty value. The start tag of the `structure` element should now look something like this:

```
<structure version="2" schemafile="test.xsd" workingxmlfile=""
templatexmlfile="">
```

Save the STYLEVISION Power Stylesheet. The Working XML File is now unassigned. Note that the Authentic Preview in STYLEVISION cannot be used if no Working XML File is assigned.

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8.4.6 Edit Schema Definition in XMLSPY

This command opens the schema file in XMLSPY 2004 so that you can edit it. After you have edited and saved the modifications to your schema, you must reload the STYLEVISION Power Stylesheet so that the schema in the STYLEVISION Power Stylesheet is updated with the changes you made.

8.4.7 Save Design

The **Save Design** command saves the currently open STYLEVISION file as a STYLEVISION Power Stylesheet (with the file extension **.sps**).

Note: When you create an XML Schema from an imported HTML file, a STYLEVISION Power Stylesheet is simultaneously created. To save additional files created or generated from the imported HTML file, click the Save Design command. This pops up a dialog that gives you the option of saving the created XML Schema, generated XSLT stylesheets, and generated XML file. to save th

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8.4.8 Save Design As...

The **Save Design As...** command shows the familiar Save as... dialog of Windows systems and prompts you for the name of the STYLEVISION Power Stylesheet to be saved and the location where you want it saved. The newly saved file becomes the current file in STYLEVISION.

8.4.9 Save Authentic XML Data...

The **Save Authentic XML Data...** command enables you to save modifications to the Working XML File directly in STYLEVISION (so you do not have to open a separate application to open the Working XML File). This means that you can edit the Authentic View of an XML file in STYLEVISION.

Note: This option is disabled if the current STYLEVISION Power Stylesheet is based on a DB.

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8.4.10 Save Generated Files

The **Save Generated Files** command pops up a submenu which contains options for saving the following files. For the relationship between the STYLEVISION Power Stylesheet and the various generated files, see Uses of STYLEVISION Power Stylesheets and STYLEVISION and HTML / PDF output.

Save Generated XSLT File...
The Save Generated XSLT File... command generates an XSLT file for HTML output from your STYLEVISION Power Stylesheet. You can use this XSLT file subsequently to transform an XML document to HTML.

Save Generated HTML File...
The Save Generated HTML File... command generates an HTML file. This operation requires two input files:

- The Working XML File assigned to the currently open SPS file. If no Working XML File has been assigned, the Save Generated HTML File... command is disabled
- An XSLT file, which is generated from the currently open SPS file.

Save Generated XSL-FO File...
The Save Generated XSL-FO File... command generates an XSLT-for-FO (XSL-FO) file from your STYLEVISION Power Stylesheet. You can use this XSL-FO file subsequently to transform an XML document to an FO document.

Save Generated FO File...
The Save Generated FO File... command generates an FO file. This operation requires two input files:

- The Working XML File assigned to the currently open SPS file. If no Working XML File has been assigned, an error message saying the XML file could not be loaded is displayed.
- An XSLT-for-FO (XSL-FO) file, which is generated from the currently open SPS file.

Save Generated PDF File...
The Save Generated PDF File... command generates a PDF file. It requires the following inputs and settings:

- A Working XML File. If no Working XML File has been assigned, an error message saying the XML file could not be loaded is displayed.
- An XSLT-for-FO (XSL-FO) file, which is generated from the currently open SPS file.
- The path to the FO processor must be set in the **Tools | XSL-FO Options...** dialog.

Save Generated DB Schema...
When you connect to a DB in order to create a STYLEVISION Power Stylesheet, STYLEVISION generates and loads an XML Schema based on the DB structure. The Save Generated DB Schema... command enables you to save this XML Schema.

Save Generated DB XML Data...
The Save Generated DB XML Data... command generates and saves an XML file that is (i) conformant with the XML Schema imported from the DB, and (ii) contains data from the DB. If DB Filters have been defined in the STYLEVISION Power Stylesheet, these are applied to the data import.

8.4.11 Print Preview...

The **Print Preview...** command opens a window containing a preview of the Authentic View of the Working XML File.

Note: This option is disabled if the current STYLEVISION Power Stylesheet is based on a DB.

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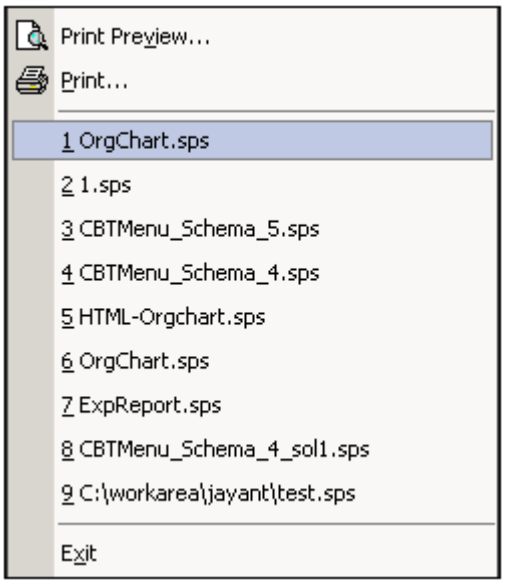
8.4.12 Print...

The **Print...** command prints the Authentic View of the Working XML File.

Note: This option is disabled if the current STYLEVISION Power Stylesheet is based on a DB.

8.4.13 Most recently used files

The list of most recently used files, shows the file name and path information for the nine most recently used files, which you can select with the mouse.



To access these files using the **keyboard**, press **ALT+F** to open the File menu, and then the number of the file you wish to open; for example, pressing **1** will open the first file in the list, **2** the second file, and so on.

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8.4.14 Exit

The **Exit** command is used to quit STYLEVISION. If you have an open file with unsaved changes, you will be prompted to save these changes.

8.5 Edit

The **Edit** menu contains the **Undo** and **Redo** commands which allow you to discard or restore your previous actions. Other editing commands include **Find, Find Next,** and commands to edit database filters and variables.

The **Edit** menu also contains other standard editing commands such as **Cut** (Ctrl+Del), **Copy** (Ctrl+C), **Paste** (Ctrl+V), and **Delete** (Del), which are not described in this section.

Commands that are not applicable at a given location, or for a given selection, are grayed out in the menu. The relevant commands are also available via the context menu that appears when you right-click a component or at a cursor insertion point inside the document. Additionally, some commands are available as shortcuts and/or toolbar icons.

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8.5.1 Undo

Hotkey: **CTRL + Z**

The **Undo** command enables you to undo an editing change and contains support for an unlimited number of Undos. Every action can be undone and it is possible to undo one command after another till the previous Save command. The Undo history is retained till the document is saved.

Also see: Redo.

8.5.2 Redo

Hotkey: **CTRL + Y**

The **Redo** command allows you to redo any number of previously undone commands. By using the Undo and Redo commands, you can step backward and forward through the history of commands.

Also see: Undo.

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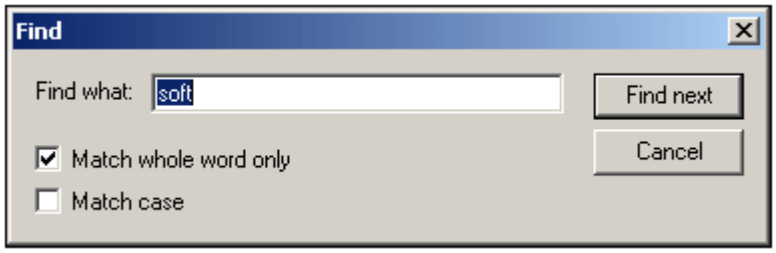
8.5.3 Find

Hotkey: **Ctrl + F**

The **Find** command allows you to find words or fragments of words in the Authentic Preview of the Working XML File, and in the XSLT and XSL-FO stylesheets. The **Find** command is enabled only when the Authentic Preview or XSLT or XSL-FO stylesheet view is selected. Clicking the command pops up the following dialog:



Note the following:

- In the Authentic Preview, only the XML data is searched. Text that is inserted via the XSLT is not searched.
- In the XSLT and XSL-FO stylesheets, all text is searched.
- To match the entry with whole words in the XML document, check "Match whole word only". For example, an entry of `soft` will find only the whole word `soft`; it will not find, for example, the `soft` in `software`.
- To match the entry with fragments of words, leave the "Match whole word only" check box unchecked. Doing this would enable you, for example, to enter `soft` and `software`.
- To make the search case-insensitive, leave the "Match case" checkbox unchecked. This would enable you to find, say, `Soft` with an entry of `soft`.

8.5.4 Find Next

Hotkey: **F3**

The "Find next" command repeats the last Find command to search for the next occurrence of the requested text. See Find for a description of how to use the search function.

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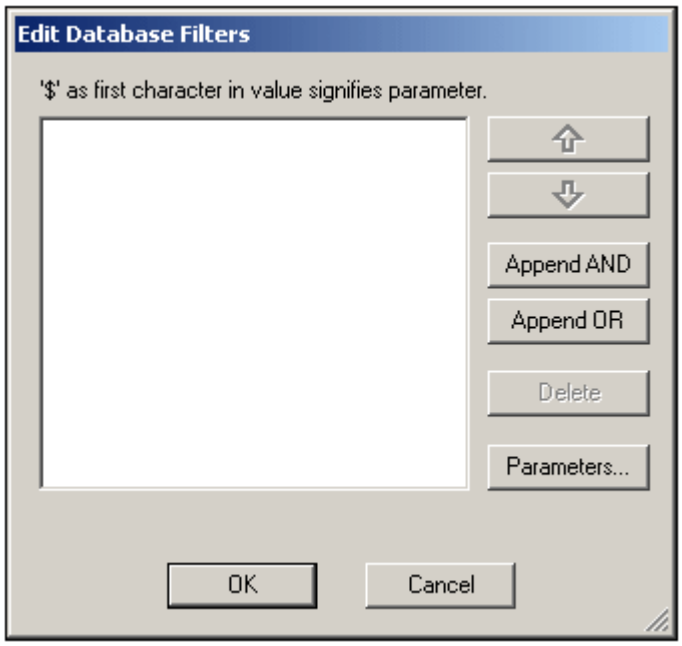
8.5.5 Edit DB Filter...

The **Edit DB Filter...** command allows you to create and edit a filter for a database table (a DB Filter). A DB Filter determines what data from the selected database table is imported and displayed. A DB Filter consists of one or more criteria. When you specify criteria, you use an expression, which is a combination of operators (**=** or **>**) and values (text or numbers). Additionally, criteria can be joined by the logical operators **AND** or **OR**.

To create or edit a DB Filter, do the following:

1. Select the top-level data table element for which you wish to create or edit a DB Filter. Do this by clicking either the element tag in Design View or the element name in the schema tree.
2. Select **Edit | Edit DB Filter...** or click the toolbar icon for the command. This pops up the Edit Database Filters dialog.



3. To add criteria use the **Append AND** and **Append OR** buttons. To move a criterion up or down, use the arrow buttons. To delete a criterion, use the Delete button.
4. Specify the criteria for the DB Filter. Each criterion consists of three parts: **`Field Name + Operator + Value`**. The options for Field Names and Operators are available in combo boxes. The value of the expression must be keyed in, and may be a parameter (indicated by a preceding $ character).

Also see:

- For details about creating and working with DB Filters, DB Filters in the How To Use section.
- For details about using parameters, DB Parameters (for parameters in DB Filters) and Parameters (for parameters in the stylesheet).

8.5.6 Clear DB Filter

The **Clear DB Filter** command deletes the filter after asking for and receiving a confirmation from you.

For details about working with DB Filters, see DB Filters in the How To Use section.

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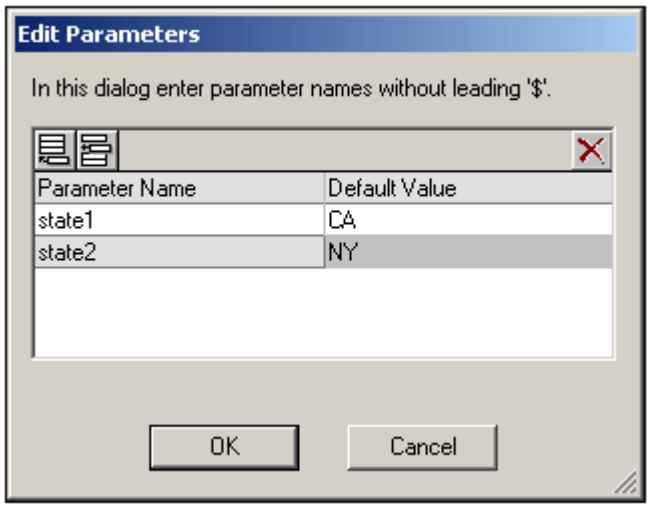
8.5.7 Edit Stylesheet Parameters...

The **Edit Stylesheet Parameters...** command enables you to declare and edit parameters and their default values. When you click this command, the Edit Parameters dialog (shown below) pops up.



The following points should be noted:

- You can insert, append, edit and delete parameters for the entire stylesheet and for the DB Filters.
- Parameter names must begin with a letter, and can contain the characters A to Z, a to z, 0 to 9, and the underscore.

Also see:

- For an overview of how parameters are to be used, Parameters in the How To Use section.
- For details about working with DB Filters, DB Filters in the How To Use section.

8.5.8 Select all

The **Select all** command Selects the entire contents of the Design Document window.

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8.6 Insert

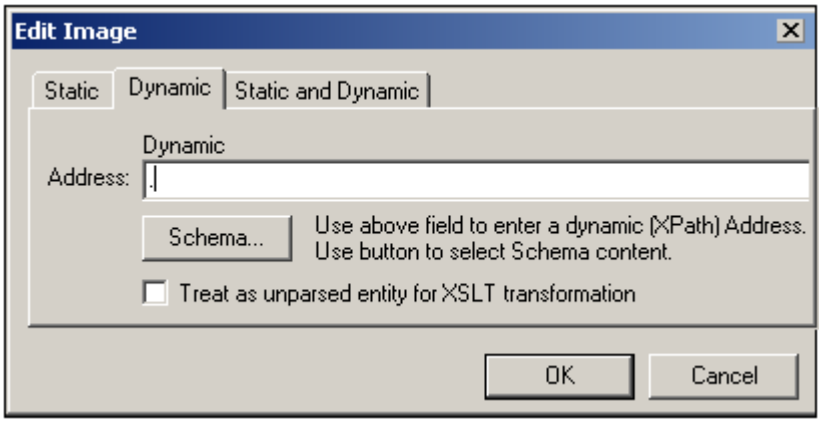
The **Insert** menu provides commands enabling you to insert various items into the Design Document. The relevant commands are also accessible via the context menu, which appears when you place the cursor or select a component in the Design Document. In some cases, a command is additionally available as a shortcut and/or as an icon in the toolbar.

8.6.1 Image...

The **Image...** command allows you to insert an image using an image location address that either comes from the XML document (dynamic) or is entered by you directly in the STYLEVISION Power Stylesheet (static).

To insert an image, do the following:

1. Click **Insert | Image...** or the Insert Image toolbar icon. The Insert Image dialog (shown below) appears.



2. Select the required tab (Static, Dynamic, or Static and Dynamic), and enter the address of the image location and/or the XPath expression that locates the image address in the XML document. The screenshot above shows how a Static and Dynamic address is entered. The Dynamic part of the address varies, and is the content of the current `Department` element.

Also see: Including an image

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8.6.2 Paragraph

The **Paragraph** command inserts an HTML paragraph <p> element around the selected component. A component is selected when the entire component is selected or when the cursor is placed inside the component.

Also see: Formatting the components

8.6.3 Format

The **Format** command allows you to assign a predefined format to the selected node. The available predefined formats can also be selected from the combo box in the toolbar.

Also see: Formatting and Formatting the components

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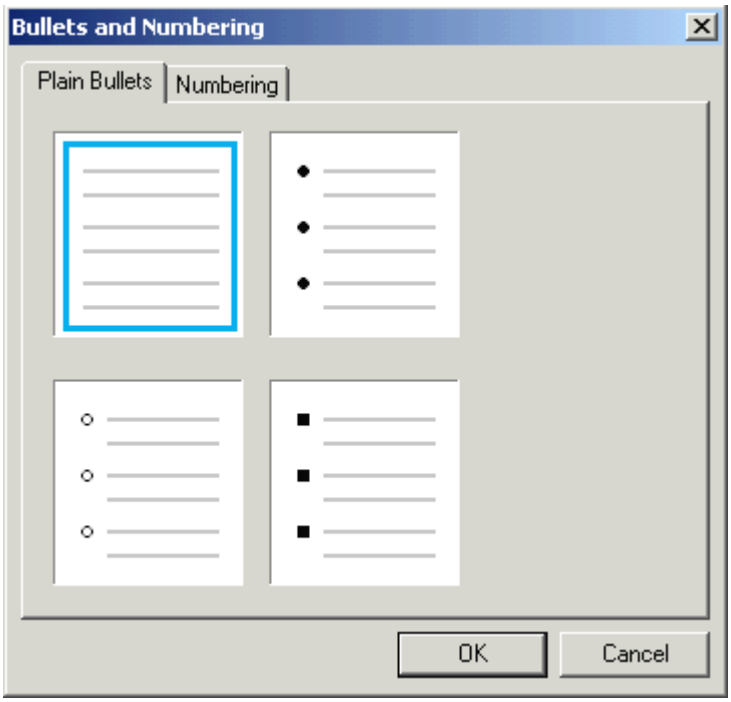
8.6.4 Bullets and Numbering

The **Bullets and Numbering** command allows you to create an element (which has multiple instances) as a list. For example, the persons in a department can be presented in a numbered list, or the paragraphs in a section can be presented as a bulletted list. In each case, it is the element which is to appear as the listitem that must be created as the list.

The Bullets and Numbering command should be used as a STYLEVISION Power Stylesheet component type rather than inserted around an element or independently of one; that is, an element must be created as a list (when it is dropped into the Design Document), or changed to a list (via the context menu obtained by right-clicking a selected element).

The Bullets and Numbering dialog looks like this:

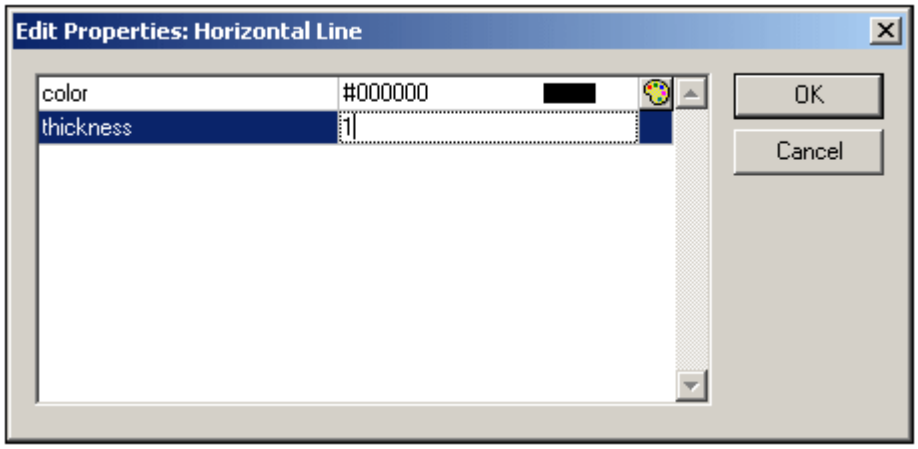


You can specify the required listitem marker in this dialog.

For a description of usage, see Lists.

8.6.5 Horizontal Line

The **Horizontal Line** command inserts a horizontal rule at the cursor insertion point. It is not available when a STYLEVISION Power Stylesheet component is selected. By default, the inserted rule is black and has a thickness of 1pt. You can change the default values after inserting the rule by right-clicking the rule and selecting Edit Properties. The following dialog appears:



Edit the color and thickness values as required, and then click OK.

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8.6.6 Contents

The **Contents** command inserts the `(contents)` placeholder for that node. This placeholder represents all the content of the element (text, element, or mixed content), or, in the case of an attribute, its value. The `(contents)` placeholder corresponds to the `xsl:apply-templates` rule of XSLT, which causes the relevant templates to be applied to all child nodes (including attribute and text nodes).

The `(contents)` placeholder can be formatted by selecting it and using a Predefined Format and/or properties in the Text Style and/or Block Style windows. This formatting is visible in the Design Document, and, in the output, it will be applied to the content of the node.

If another node from the schema tree is dropped into a node containing a `(contents)` placeholder, then the existing `(contents)` placeholder is replaced by the new node.

The `(contents)` placeholder can be deleted by selecting it and pressing the Del key on the keyboard. It can also be inserted for a node by placing the cursor inside the node tags, right-clicking, and selecting Insert Contents.

Note: You can create an **empty template rule** by deleting the `(contents)` placeholder of a node. An empty template rule is useful if you wish to define that some node have no template applied to it, i.e. produce no output.

Also see: Processing attribute values for output, Processing element content for output, Data-entry devices, and Rest of Contents.

8.6.7 Rest of Contents

The **Rest of Contents** command inserts the `(rest-of-contents)` placeholder for that node. This placeholder represents the content of **unused child nodes** of the current node; it corresponds to the `xsl:apply-templates` rule of XSLT applied to the unused elements and text nodes of the current element. Note that templates are not applied for child attributes.

Use the `(rest-of-contents)` placeholder in situations where you wish to process one child element in a specific way and apply templates to its siblings. It is important to apply templates to siblings in order to avoid the possibility that the siblings are not processed. This enables you to reach elements lower down in the document hierarchy.

The `(rest-of-contents)` placeholder can be deleted by selecting it and pressing the Del key on the keyboard. It can also be inserted for an element by placing the cursor inside the element tags, right-clicking, and selecting Insert Rest of Contents.

Also see: Contents.

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8.6.8 Date Picker

The **Date Picker** is a graphical calendar in Authentic View with which the Authentic View user can enter the date for that `xs:date` datatype element. This date is entered in the XML document in the standard XML Schema format for dates: **`YYYY-MM-DD`**..

The Date Picker command allows you to insert a Date Picker at the cursor insertion point. This command is enabled only when the cursor is placed within the tags of an (XML Schema) `xs:date` datatype element and if the element has been created as `(contents)` or an input field.

For a description of how to insert the Date Picker in the STYLEVISION Power Stylesheet directly the element is created or when an element is changed to `(contents)` or an input field, see Date Picker in the How To section of this documentation.

For the formatting of dates, see Input Formatting.

8.6.9 Page

With the **Page** command you can insert, for paged media output, either a page break (HTML printouts and PDF) and page number (PDF). These insertions are possible only at cursor insertion points.

Page Break
Click **Page | Break** to define a page break at the cursor insertion point. The page break is displayed as a dashed line across the whole of the Design window. In HTML output, while the page break has no effect in the browser view, a page break will be inserted when the browser view of the HTML file is **printed out**. In PDF output, a page break is inserted at the specified locations.

Page Number
Click **Page | Number** to insert the current page number in the PDF output. The page number appears as a block (i.e. as a separate line) or as an inline (embedded in document text), depending on where in the document the page number has been inserted. For example, if the page number is inserted within a paragraph element, then the page number appears inline within the paragraph. If, on the other hand, the page number is inserted, say, between two elements, then it appears on a separate line by itself.

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8.6.10 Bookmark

The **Bookmark** command allows you to insert a bookmark (or anchor) anywhere in the STYLEVISION Power Stylesheet. A bookmark can be inserted around any STYLEVISION Power Stylesheet component, or it can be inserted independently of a node. A bookmark can be referenced by a Hyperlink.

To insert a bookmark, do the following:

1. Select any STYLEVISION Power Stylesheet component or place the cursor at the location where you wish to create the bookmark.
2. Select **Insert | Bookmark**, or right-click and select **Insert | Bookmark**, or use the shortcut CTRL+G.
3. In the Insert Bookmark dialog, enter a name for the bookmark in the Name field. (If there are more bookmarks on the page, they are displayed in the "Other bookmarks on this page" window.)
4. Click OK. The bookmark is defined. If the bookmark is created around a component, then the component is shown with a dashed underline; if the bookmark is free-standing, then it is indicated with a blue flag.

Note:

- A bookmark is created for a single, fixed location in the STYLEVISION Power Stylesheet and, by extension, in the XML document. If you create a bookmark around an element, the bookmark is created around the first occurrence of that element—and not around each occurrence of that element.
- The name of the bookmark is a static name that you give. It does not come dynamically from the XML document. You cannot assign a dynamic name to a bookmark.

You can delete a bookmark after it has been created by selecting the bookmark in the "Other Bookmarks on this page" list (in the Insert Bookmark dialog), and clicking the Clear button.

Also see: Inserting bookmarks and hyperlinks in the Tutorial section and Hyperlink.

8.6.11 Hyperlink

The **Hyperlink** command/icon allows you to insert a link from a STYLEVISION Power Stylesheet component to any document or document fragment.

To insert a hyperlink, do the following:

1. Select the STYLEVISION Power Stylesheet component or text fragment to be made into a hyperlink.
2. Click the Hyperlink icon in the toolbar, or select **Insert | Hyperlink...**, or right-click and select **Insert | Hyperlink...**, or use the shortcut CTRL+K.
3. In the Insert Hyperlink dialog, specify the document or document fragment you wish to link to. You do this by specifying a URL in one of the following forms:
   - a static address (that you enter; you can select an HTML file via the Browse button, and a fragment in the current document via the Bookmark button). Examples would be: `http://www.altova.com` (static Web page URL); `U:\documentation\index.html` (via Browse button); or `#top_of_page` (via Bookmark button).
   - a dynamic address (that comes from a node in the XML document; you specify the node). An example would be a node such as `//otherdocs/doc1`.
   - a combination of static and dynamic text for an address (you specify the static text and the XML document node). An example would be `www.altova.com -- department/name -- #intropara`.
4. Click OK. The hyperlink is created, and the component is underlined to indicate this.

Note: When specifying the node for a dynamic hyperlink entry, you can enter the XPath expression as an absolute XPath by checking the Absolute Path check box. If this check box is not checked, the XPath for the node you select via the Schema button is entered as being relative to the currently selected component.

Removing a hyperlink
The link for the selected component can be removed by clicking the Remove Link button in the Insert Hyperlink dialog.

Also see: Inserting bookmarks and hyperlinks in the Tutorial section and Bookmark

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8.6.12 Auto-Calculation

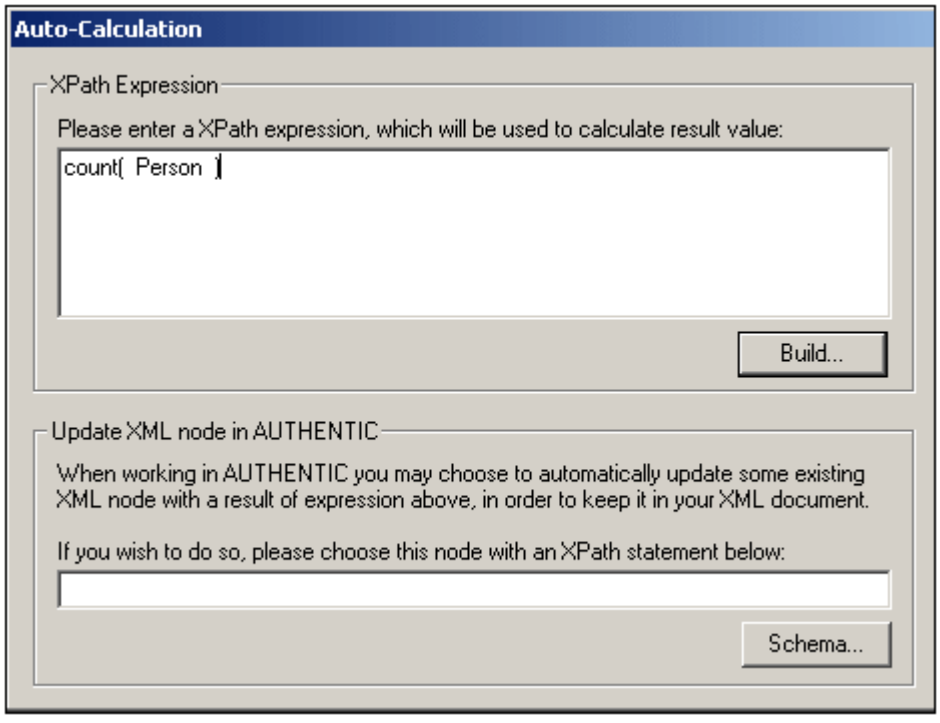
An **Auto-Calculation** uses an XPath expression to generate a result that is placed in the document at the point where you insert the Auto-Calculation. Note the following points:

- An Auto-Calculation can be inserted anywhere in the Design Document.
- The point at which you insert the Auto-Calculation determines the context node for the XPath evaluation.
- An Auto-Calculation result is non-editable.
- Any node in the XML document can be updated with the result of the Auto-Calculation.

To insert an Auto-Calculation, do the following:

1. Place the cursor in the Design Document at the point where you wish to insert the Auto-Calculation.
2. Click **Insert | Auto-Calculation**. The following sub-menu appears:

3. Click an option according to what you wish to create the Auto-Calculation as (value, input field, etc). (Note, however, that the Auto-Calculation is non-editable in Authentic View, even if created as an input field.) This pops up the Auto-Calculation dialog:


Auto-Calculation
XPath Expression
Please enter a XPath expression, which will be used to calculate result value:
count(Person)
Build...
Update XML node in AUTHENTIC
When working in AUTHENTIC you may choose to automatically update some existing XML node with a result of expression above, in order to keep it in your XML document.
If you wish to do so, please choose this node with an XPath statement below:
Schema...

4. Build or enter the XPath expression.
5. If you wish to update a node, select the node by clicking the Schema... button and then the required node.

For examples of how to use Auto-Calculations, see Using Auto-Calculation.

8.6.13 Condition

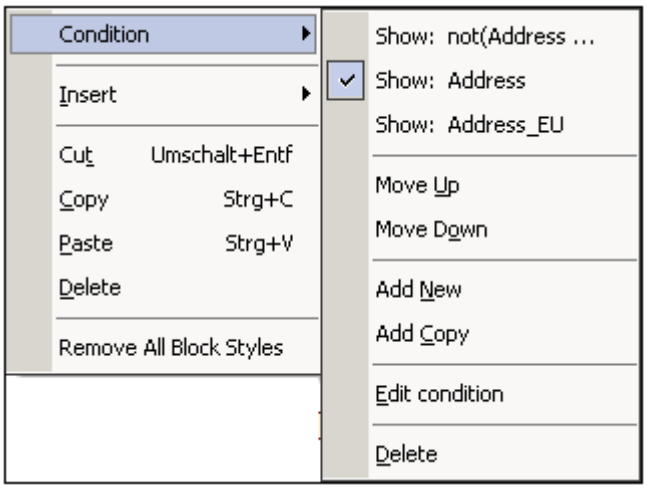
The **Condition...** command enables you to insert a condition (in a conditional template) at the cursor point or around the selection. A conditional template consists of one or more conditions, and each condition has specific processing rules associated with it.

A condition can be inserted at any point in the STYLEVISION Power Stylesheet. The first condition you insert creates the conditional template; subsequently, conditions can be added to the same conditional template. Use the **Insert | Condition...** command to insert a condition.

The location in the STYLEVISION Power Stylesheet determines the context node for the XPath expression used to specify the condition. When you specify the XPath expression, you can specify it as an absolute XPath or relative to the context node.

A node is tested against each condition in turn. The first condition that is evaluated as being true for a node causes the processing rules associated with that condition to be applied to that node; the conditional template is then exited. If no condition is evaluated as true, either a default processing—if you have defined one—is used for the node, or no processing is used at all. The order in which conditions are specified is, therefore, significant.

Right-clicking a condition causes the following sub-menu for the Condition command to appear:



The currently selected condition is indicated with a check mark. The Edit condition command allows you to edit the XPath expression that defines this condition. To edit another condition, you have to first select the condition you wish to edit, and then select the Edit condition command. You can move the currently selected condition up or down the list of conditions in the conditional template by clicking the Move Up or Move Down commands.

The use of conditional templates is described with examples in Conditional templates in the How To Use section.

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8.7 Table

The **Table** menu provides commands enabling you to insert a static table and to change the structure and properties for both static and dynamic tables. You can edit edit table structure by appending, inserting, deleting, joining, and splitting rows and columns. Properties of the table as well as of individual columns, rows, and cells are defined in the Table Properties dialog.

The Table commands are available in the Table menu and as icons in the toolbar. The availability of various table commands depends on the current cursor position. A static table can be inserted at any location in the STYLEVISION Power Stylesheet by clicking the Insert Table command. A dynamic table is inserted by creating an element as, or changing an element to, a table. To edit the table structure, place the cursor in the appropriate cell, column, or row, and select the required editing command. To edit a formatting property, place the cursor in the appropriate cell, column, row, or table, and define the required property in the Table Properties dialog.

Headers and footers
When you create a dynamic table, you can specify whether you wish to include headers and/or footers. (Footers are allowed only when the table grows top–down.) You can create a header and footer in a static table by manually inserting a top and bottom row, respectively. The structures of headers and footers in both static and dynamic tables can be modified by splitting and joining cells.

Navigating in tables
Use the Tab and arrow keys to navigate the table cells.

Adding cell content
You can inset any type of STYLEVISION Power Stylesheet component as the content of a cell. The component should be formatted using the standard formatting tools.

See: Tables for a description of the various types of tables used in STYLEVISION Power Stylesheets, and CALS / HTML Table properties... for a description of how to enable XML tables for the Authentic View user.

8.7.1 Insert Table...

The **Insert Table...** command inserts an empty static table into the design tab. Selecting this command opens a dialog box which allows you to define the size of the table (in terms of its rows and columns). You can change this structure subsequently by appending, inserting, and deleting rows and/or columns.

To insert a dynamic table**,** see Creating dynamic tables.

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8.7.2 Delete table

The **Delete Table** command deletes the static or dynamic table in which the cursor is.

8.7.3 Append Row

The **Append Row** command appends a row to the static or dynamic table in which the cursor is.

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8.7.4 Append Column

The **Append Column** command appends a column to the static or dynamic table in which the cursor is.

8.7.5 Insert Row

The **Insert Row** command inserts a row above the row in which the cursor is. This command applies to both static and dynamic tables.

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8.7.6 Insert Column

The **Insert Column** command inserts a column to the left of the column in which the cursor is. This command applies to both static and dynamic tables..

8.7.7 Delete Row

The **Delete Row** command deletes the row in which the cursor is. This command applies to both static and dynamic tables.

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8.7.8 Delete Column

The **Delete Column** command deletes the column in which the cursor is. This command applies to both static and dynamic tables.

8.7.9 Join Cell Left

The **Join Cell Left** command joins the cell in which the cursor is to the adjacent cell on the left. The contents of both cells are concatenated in the new cell. All property values of the cell to the left are passed to the new cell. This command applies to both static and dynamic tables.

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8.7.10 Join Cell Right

The **Join Cell Right** command joins the cell in which the cursor is to the cell on the right. The contents of both cells are concatenated in the new cell. All property values of the cell to the left are passed to the new cell. This command applies to both static and dynamic tables.

8.7.11 Join Cell Below

The **Join Cell Below** command joins the cell in which the cursor is to the cell below. The contents of both cells are concatenated in the new cell. All property values of the cell on the top are passed to the new cell. This command applies to both static and dynamic tables.

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8.7.12 Join Cell Above

The **Join Cell Above** command joins the cell in which the cursor is to the cell above. The contents of both cells are concatenated in the new cell. All property values of the cell on top are passed to the new cell. This command applies to both static and dynamic tables.

8.7.13 Split Cell Horizontally

The **Split Cell Horizontally** command creates a new cell to the right of the cell in which the cursor is. The contents of the original cell stay in the original cell. All properties of the original cell are passed to the new cell. This command applies to both static and dynamic tables.

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8.7.14 Split Cell Vertically

The **Split Cell Vertically** command creates a new cell below the cell in which the cursor is. The contents of the original cell remain in the upper cell. All properties of the original cell are passed to the new cell. This command applies to both static and dynamic tables.

8.7.15 View Cell Bounds

The **View Cell Bounds** command toggles the display of table boundaries (borders) on and off for tables that have a table border value of 0. This command applies to both static and dynamic tables.

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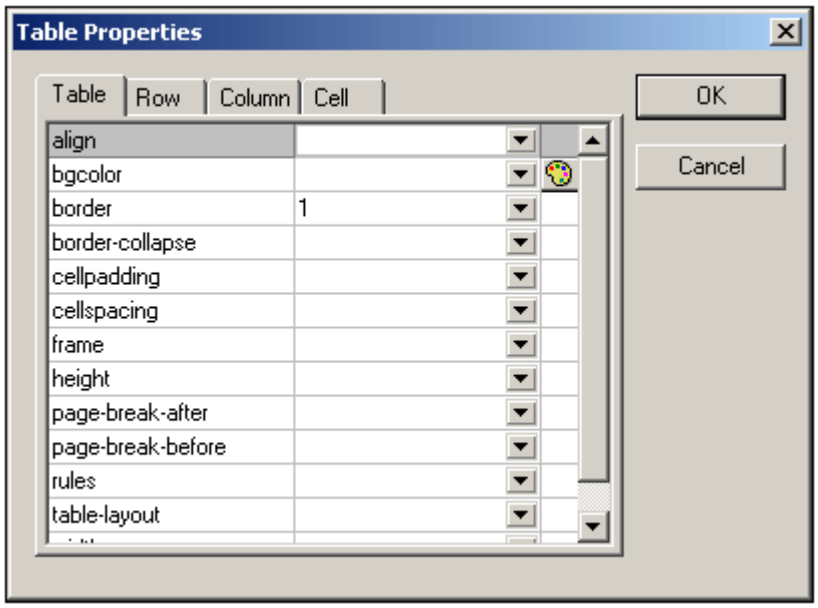
8.7.16 Table Properties

The **Table Properties** command opens the Table Properties dialog box for static and dynamic tables.



In the Table Properties dialog, you can specify the formatting properties of the table as a whole, as well as for individual rows, columns, and cells. The cursor must be in the cell, column, row, or table to be formatted before you select this command. The table properties available in this dialog closely follow those of HTML. So, the `frame` and `rules` properties define whether and how table and cell borders are drawn, `border` defines the width of borders, and so on.

Cellpadding
The following points about cellpadding in tables should be noted:

- In the Table Properties dialog, cellpadding is specified globally in the Table tab as the padding of all cells in the table. To specify padding for a particular cell, place the cursor in the cell and specify the padding (separately for each of the four components: left, top, right, and bottom) in the Layout tab of the Block Style window.

8.7.17 Vertical alignment of cell content

Commands to set the vertical alignment of cell content are available as icons in the toolbar. Place the cursor anywhere in the cell, and click the required icon.

Vertically Align Top vertically aligns cell content with the top of the cell.

Vertically Align Middle vertically aligns cell content with the middle.

Vertically Align Bottom vertically aligns cell content with the bottm of the cell.

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8.8 Authentic

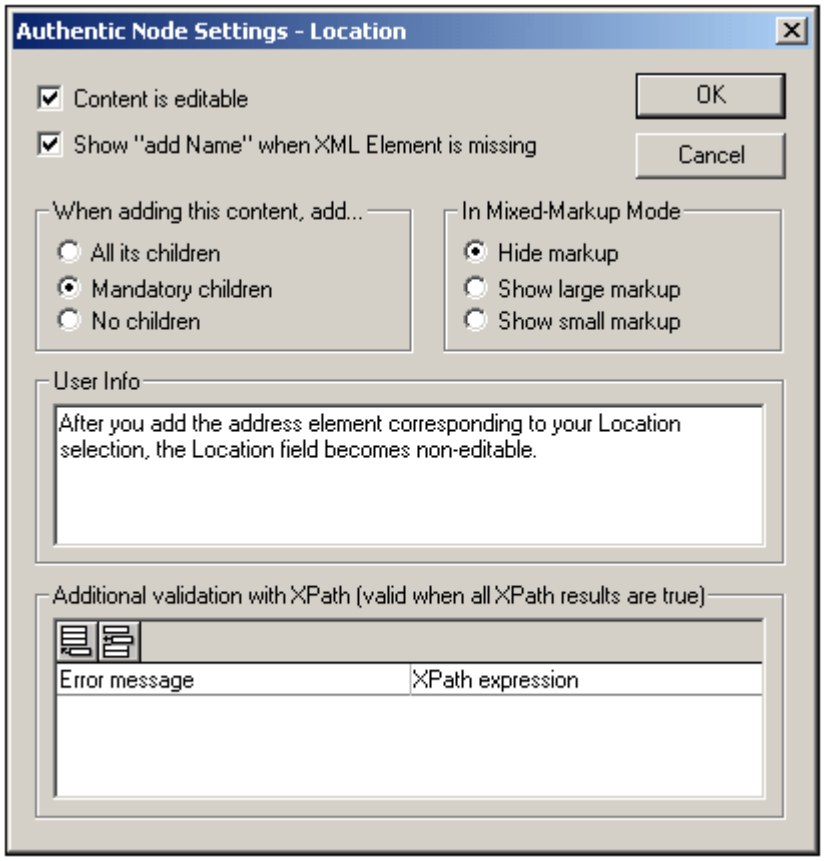
The **Authentic** menu contains commands that enable you to customize aspects of the Authentic View of an XML document that will be displayed using the STYLEVISION Power Stylesheet. The document processing that you specify using commands in this menu apply only for Authentic View; they do not apply for HTML or PDF output.

8.8.1 Node Settings...

The **Node Settings...** command allows you to define the properties of a node for display **in Authentic View**. You can specify node settings for elements, attributes, the text content of elements and attributes, and Auto-Calculations. Select the element/attribute tag to assign node settings for the element or attribute. Select the `(contents)` placeholder, data-entry device, etc, or Auto-Calculation to assign node settings for text content and Auto-Calculations. If node settings have been specified for both an element/attribute node as well as for its contents, then the node settings for the contents takes precedence.

You can also call the Authentic Node Settings dialog by right-clicking the node and selecting **Authentic Node Settings...**.

Settings for Element/Attribute nodes
The following Authentic Node Settings dialog appears when an element or attribute is selected.


Authentic Node Settings - Location
Content is editable
Show "add Name" when XML Element is missing
OK
Cancel
When adding this content, add...
All its children
Mandatory children
No children
In Mixed-Markup Mode
Hide markup
Show large markup
Show small markup
User Info
After you add the address element corresponding to your Location selection, the Location field becomes non-editable.
Additional validation with XPath (valid when all XPath results are true)
Error message
XPath expression

The name of the selected element/attribute appears in the title bar of the dialog.

Settings for content nodes and Auto-Calculations

The following Authentic Node Settings dialog appears when the contents, data-entry device, etc, or an Auto-Calculation is selected.

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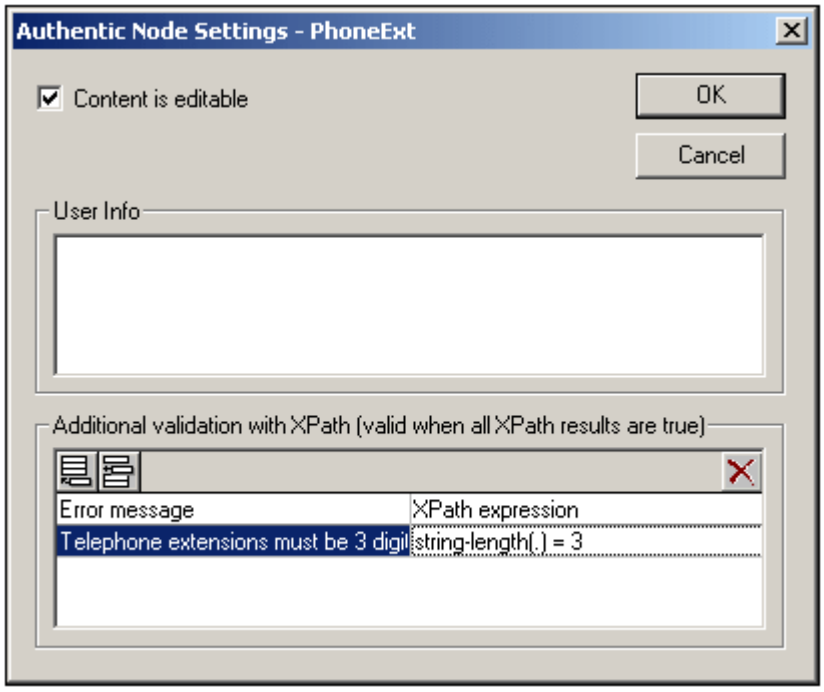

The name of the parent element/attribute appears in the title bar of the dialog.

Authentic Node Setings
The following node settings can be made to control the behavior of individual nodes in the Authentic View display.

Content is editable
Checking this box enables the Authentic View user to edit the XML content of the node. The check box is checked by default. This setting is available when the selected node is an element, attribute, or contents. Auto-Calculation results cannot be edited; this value is computed with the XPath expression you enter for the Auto-Calculation.

Show "add Name" when XML Element is missing
Checking this check box specifies that a prompt ("Add [element/attribute name]") will appear in Authentic View when the selected element or attribute is missing. The check box is checked by default. This setting is available when the selected node is an element or an attribute.

When adding content, add...
This setting is available when the selected node is an element. It allows you to define what child elements of the selected element are inserted when the selected element is added. The options are: all child elements, mandatory child elements, and no child element.

In Mixed-Markup Mode
This setting is available when the selected node is an element or attribute, and enables you to specify how individual nodes will be marked up in the mixed markup mode of Authentic View. The following options exist: large markup (tags with node names); small markup (tags without node names); and no markup.

User Info
Text entered in this text box appears as a tooltip when the mouse pointer is placed over the node. It is available when the selected node is an element, attribute, contents, or an Auto-Calculation. If both the element/attribute node as well as the contents node has User Info, then the User Info for the contents node is displayed as the tooltip when the mouse is placed over the

node.

Additional validation with XPath
This setting is available when the selected node is an element, attribute, or contents. You can set an XPath expression to define the validity of the node's XML value. An XML value that falls outside this defined range is invalid. If the XML value of the node is invalid, this is made known to the Authentic View user by means of an **error message** when the XML document is validated (**F8**). The error message that is displayed is the text you enter into the Error message field of the Additional Validation setting. Additionally, if the selected node is contents, invalid data is **displayed in red** in Authentic View, and the **error message** is displayed on a mouseover.

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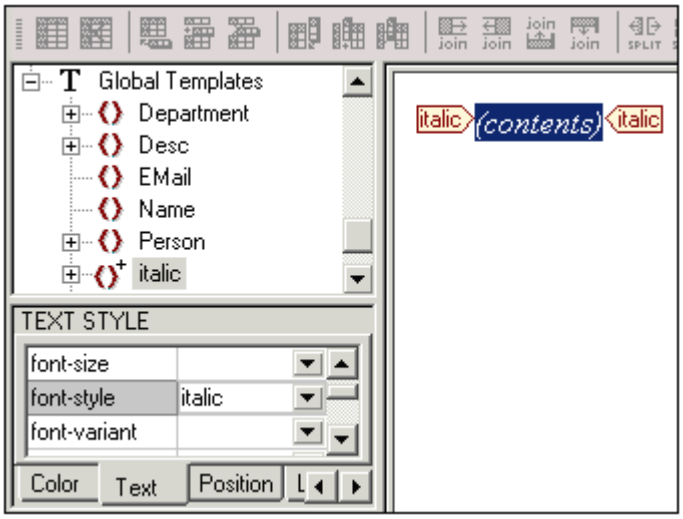
8.8.2 Text State Icons...

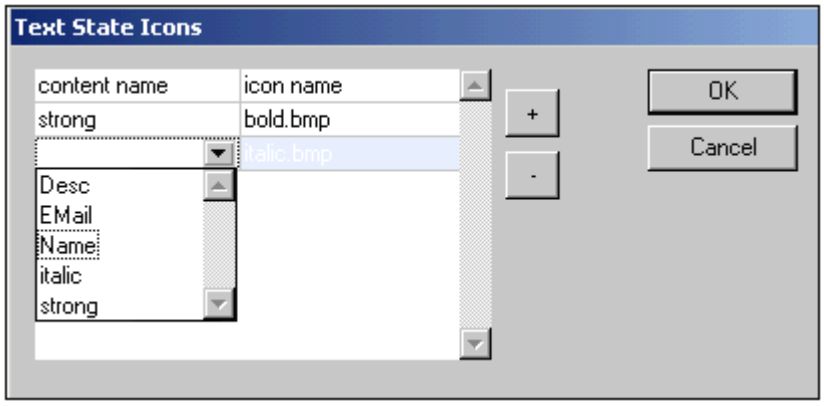
The **Text State Icons...** command enables you to define an icon for a global element. Once defined the icon can be displayed in the toolbar of Authentic View, thus allowing the Authentic View user to insert an element around selected text by clicking the icon. This feature is intended for elements that provide inline formating, such as bold and italic fonts.

All global elements in the schema appear in the Global Templates list in the Schema Window. To create a Text State icon, do the following:

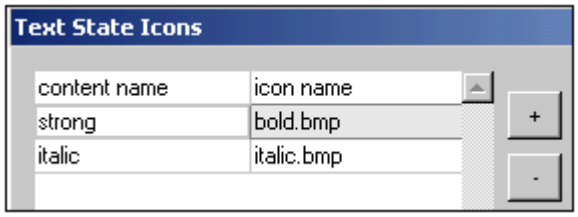
1. Define a global template for the global element that is to get a Text State icon. The formatting that you define for the global template will be applied to text when the Authentic View user clicks the Text State icon. The screenshot below shows the global template for the `italic` element. (If the element you require is not available as a global element, you must make it a global element if you wish to use this feature.)



2. Select the menu option **Authentic | Text State Icons...**. This opens the Text State Icons dialog box.
3. Click the "+" button to add a new Text State icon.
4. In the drop-down menu of the combo box, select the element for which you wish to create the Text State icon (`italic` in this case), and click OK.



5. Double click in the **icon name** column, and enter the name of the icon image that you wish to have displayed in the Authentic View toolbar.



6. Click OK to confirm.
7. Place the icon image file (`.bmp` file) in the `\\sps\Picts` folder of your application folder.

When you edit an XML document in Authentic View using this STYLEVISION Power Stylesheet, the icon image appears in the toolbar as a Text State icon. If the Authentic View user selects text and clicks the icon, the element represented by that icon is created around the selected text and the formatting you defined in the global template for that element is applied to the selected text.

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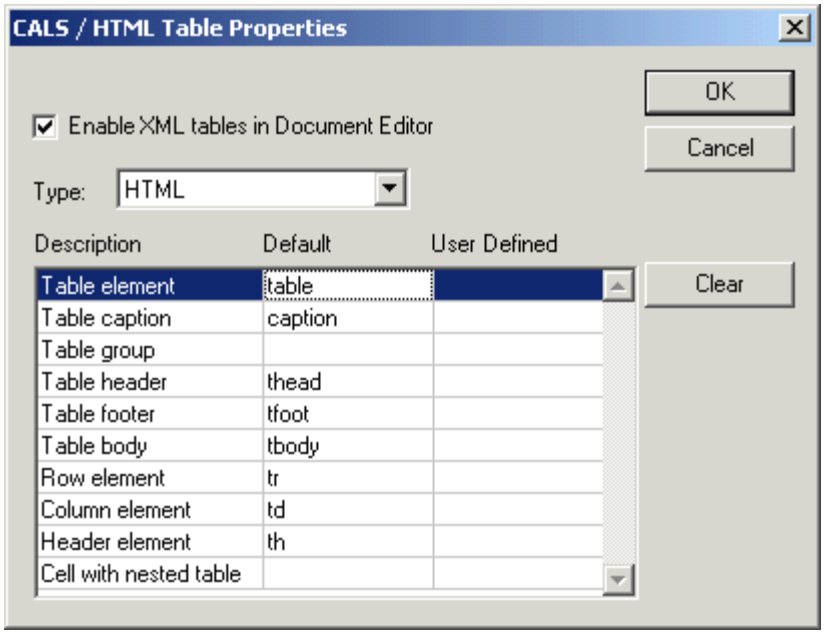
8.8.3 CALS / HTML Tables...

The **CALS / HTML Tables...** command pops up a dialog in which you specify:

- whether the Authentic View user may insert XML tables (following either the CALS or the HTML table model) in the XML document or not, and
- the XML elements that will constitute the XML table structure if XML tables are allowed.

When you click **Authentic | CALS / HTML Tables...**, the following dialog appears:



Enabling XML Tables in Authentic View
To enable XML tables in Authentic View, check the box marked Enable XML tables in Document Editor.

Enabling XML tables allows the Authentic View user to insert tables that can be structured and formatted as required by the user. This is as opposed to static and dynamic SPS tables, which are structured and formatted by you, the designer of the STYLEVISION Power Stylesheet. When an XML table is inserted in Authentic View, a set of XML elements conforming to either the CALS or HTML table model is inserted in the XML document. Cell content in Authentic View is entered as content of the corresponding element in the XML document. When the table is formatted in Authentic View, the appropriate attributes and their values are added to the relevant elements in the XML document.

Defining schema elements for the selected table model
In the combo box, select the table model (CALS or HTML) with which you want your schema table structure to correspond. This combo box is enabled only if the Enable XML tables check box has been checked. Note the following points:

- The **table elements in the schema** must correspond exactly with the structure of the selected table model (either CALS or HTML) to ensure the correct functioning of this feature; however, they do not need to have the same names as those of the table model elements.
- If a table element in the schema is named differently from the corresponding element in the selected table model, then the schema element must be mapped to the corresponding table model element by entering its name in the User Defined column of the CALS / HTML Table Properties dialog.

- The names of all **attributes** of schema table elements must correspond exactly with the relevant attribute names in the table model. These attributes must therefore be defined in the schema. Attribute names must correspond exactly because when the Authentic View user modifies the table structure or enters (for HTML tables) table properties, Authentic View enters attributes and enters/modifies attribute values for the appropriate element in the XML file. If these attributes are not present in the schema or are named (or spelled) differently in the schema, then the XML file will be invalid.

After selecting the appropriate model, all elements in the selected model which do not exist in the table structure of the schema, or which do not have a corresponding schema element specified for it, are displayed in red. If a schema element exists that corresponds to a CALS/HTML element, then you must map this element to the corresponding CALS/HTML element.

Note: When all the elements in the CALS / HTML Table Properties dialog are displayed in black, this means that the schema contains elements that correspond to the elements of the selected table model. If an element name in the Default column is displayed in red, this indicates that either no corresponding schema element exists or that a corresponding schema element exists but has not been mapped to the table model element; in the latter case you must enter the name of the corresponding schema element into the User Defined column.

Caution: If all the element names are displayed in black, be aware that this does not necessarily mean that the table structure of the schema corresponds exactly with the selected table model. There may still be additional elements in the table structure of the schema that could cause errors. You should carefully check your schema for this. Also check the attributes of the schema elements for exact correspondence and naming. Absent or wrongly named attributes will cause validation errors if the Authentic View user uses table formatting properties that use these attributes.

Also see: Tables: XML Tables in the How To Use section of this documentation.

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8.8.4 Assign Template XML File...

The **Assign Template XML** command allows you to create an XML file as the Template XML File of a STYLEVISION Power Stylesheet. When a Template XML File has been assigned to a STYLEVISION Power Stylesheet, then an XML document template based on this XML file can be opened in Authentic View. Such a template would have starting data from the Template XML File and would have its behavior controlled by the associated STYLEVISION Power Stylesheet.

Note: The Template XML file must conform to the same schema as that of the STYLEVISION Power Stylesheet to which it is linked.

Assigning a Template XML File
To assign a Template XML File, click **Authentic | Assign Template XML File...**, select the required file, and save the STYLEVISION Power Stylesheet.

Changing the Template XML File
To change the Template XML File, click **Authentic | Assign Template XML File...**, select the new Template XML File, and save the STYLEVISION Power Stylesheet.

Opening a template XML document
For Authentic View users to open a template XML document, they must do the following:

1. Select **File | New** in XMLSPY 2004 or AUTHENTIC 2004 Desktop Edition.
2. Select a STYLEVISION Power Stylesheet via the Select a STYLEVISION Power Stylesheet button. If a Template XML File has been assigned to that STYLEVISION Power Stylesheet, then a template XML document is opened in Authentic View.

Unassigning the Template XML File
Open the STYLEVISION Power Stylesheet in a plain text editor, such as Notepad. The root element of the STYLEVISION Power Stylesheet is `<structure>`. Delete the contents of the `templatexmlfile` attribute of `structure`, so that the attribute has an empty value. The start tag of the `structure` element should now look something like this:

```
<structure version="2" schemafile="test.xsd" workingxmlfile=""
templatexmlfile="">
```

Save the STYLEVISION Power Stylesheet. The Template XML File is now unassigned.

8.8.5 Auto-add Date Picker

This is a toggle command that switches the Auto-add Date Picker ON and OFF. When the Auto-add Date Picker is ON, any `xs:date` datatype element that is created as contents or as an input field will have the Date Picker automatically inserted within the element tags and after the `(contents)` placeholder or input field.

Also see: Date Picker in the How To Use section.

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8.8.6 Table

The **Table** command allows you to manipulate the rows of a **dynamic table**. You can append, insert, duplicate, and delete rows, and you can move the selected row up and down relative to the other rows of the table. A row is selected by placing the cursor inside it.

Note: Each row of a dynamic table represents an occurrence of a repeatable element within the set of all those repaetable elements.

8.8.7 Markup

With the Markup command, you can select between the Hide Markup and Show Full Markup modes. In Hide Markup mode, node tags are not displayed. In Show Full Markup mode, opening and closing tags, with their node names, are displayed.

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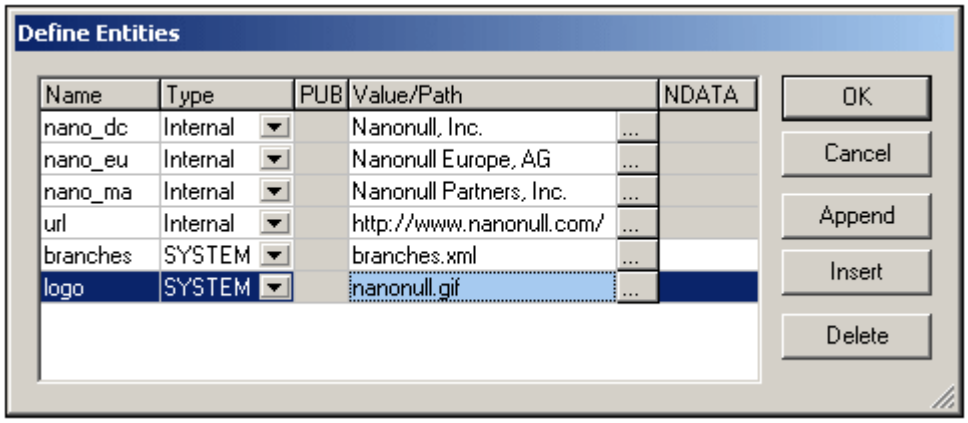
8.8.8 Define Entities

With the **Define Entities** command, you can define entities that you want to add to your XML document. After an entity has been defined, it can be inserted in the document by right-clicking at the location where you wish to insert the entity, and, from the context menu that pops up, selecting **Insert Entity**, and then the name of the entity to be inserted.

An entity that you define with this command can be any of three types:

- Internal parsed entity. The value of the entity is a text string that usually occurs frequently in the document. Using an entity ensures that all occurrences are expanded to the valu defined here.
- External parsed entity. This is an external XML file that will replace each occurrence of the entity. The value of the entity is the URI of the external XML file.
- External unparsed entity. This is an external resource that will be called when the entity is processed. The value of the entity is the URI of the external resource.

Clicking the command, pops up the Define Entities dialog (shown below).



For a description of how to use this dialog, see Define Entities in the Authentic View documentation.

8.8.9 Validate XML

This command checks the validity of the XML file against the associated schema. Any additional validation requirement that you have entered for individual nodes (**Authentic | Node Settings**) is also checked. The result of the validation check is displayed in a pop-up message box.

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8.9 HTML Import

The **HTML Import** menu enables you to convert HTML files to XML, and to auto-generate the XML Schema/DTD, XSLT stylesheet, and XML content files. For a detailed explanation, see the tutorial, Converting HTML to XML.

8.9.1 Open HTML file...

The **Open HTML file...** command enables you to open an HTML file in STYLEVISION. On clicking this command, a dialog opens in which you can browse for the HTML file you wish to import and convert to XML. Having selected the file you want to import, it then appears in the Design Document window. You then drag the elements you want to convert to XML into the schema window at left.

Please see the HTML to XML Converter documentation for details.

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8.9.2 Add to Parent

Adds the selected item, in the Design window, as a **child item** to the currently active element/attribute in the Schema window.

1. Select the XML **parent item** by clicking it in the schema window (not necessary if the root element is the only visible element in the schema view).
2. Select the HTML item (e.g. header or text) you want to define as the child item (in the **Design [Document]** window), and
3. Select the specific menu item from the list below.

Convert selection to elements
Converts the HTML selection(s) in the Design [Document] window, into an XML element.

Convert selection to attributes
Converts the HTML selection(s) in the Design [Document] window, into an XML attribute.

Surround selection with element
Embeds the current HTML selection between an XML start and XML end tag.

Convert selected Table/List to elements
Converts the HTML selection (even if the text cursor is only set in a table), into an XML table where all HTML items are converted into XML elements.

Convert selected Table/List to attributes
Converts the HTML selection (even if the text cursor is only set in a table), into an XML table where all HTML items are converted into XML attributes.

8.9.3 Insert

Inserts the selected item, in the Design window, **above** the currently active element/attribute in the Schema window.

1. Select/click the XML item **above** which the element/attribute is to be inserted in the **schema window**.
2. Select the HTML item (e.g. header or text) you want to insert and convert to XML, in the **Design [Document]** window.
3. Select the specific menu item from the list below.

Convert selection to elements
Converts the HTML selection(s) in the Design [Document] window, into an XML element.

Convert selection to attributes
Converts the HTML selection(s) in the Design [Document] window, into an XML attribute.

Surround selection with element
Embeds the current HTML selection between an XML start and XML end tag.

Convert selected Table/List to elements
Converts the HTML selection (even if the text cursor is only set in a table), into an XML table where all HTML items are converted into XML elements.

Convert selected Table/List to attributes
Converts the HTML selection (even if the text cursor is only set in a table), into an XML table where all HTML items are converted into XML attributes.

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8.9.4 Append

Appends the selected item, in the Design window, to the currently active element/attribute in the Schema window.

1. Select an XML item to which the element/attribute is to be appended in the **schema window**.
2. Select the HTML item (e.g. header or text) you want to append and convert to XML, in the **Design [Document]** window.
3. Select the specific menu item from the list below.

Convert selection to elements
Converts the HTML selection(s) in the Design [Document] window, into an XML element.

Convert selection to attributes
Converts the HTML selection(s) in the Design [Document] window, into an XML attribute.

Surround selection with element
Embeds the current HTML selection between an XML start and XML end tag.

Convert selected Table/List to elements
Converts the HTML selection (even if the text cursor is only set in a table), into an XML table where all HTML items are converted into XML elements.

Convert selected Table/List to attributes
Converts the HTML selection (even if the text cursor is only set in a table), into an XML table where all HTML items are converted into XML attributes.

8.9.5 Settings...

The "Settings..." command allows you to define the specific HTML import settings.

Import whitespace text:
Imports and preserves the whitespace of imported text.

Import empty cells from table/list:
Imports empty cells from HTML tables or lists.

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8.10 Properties

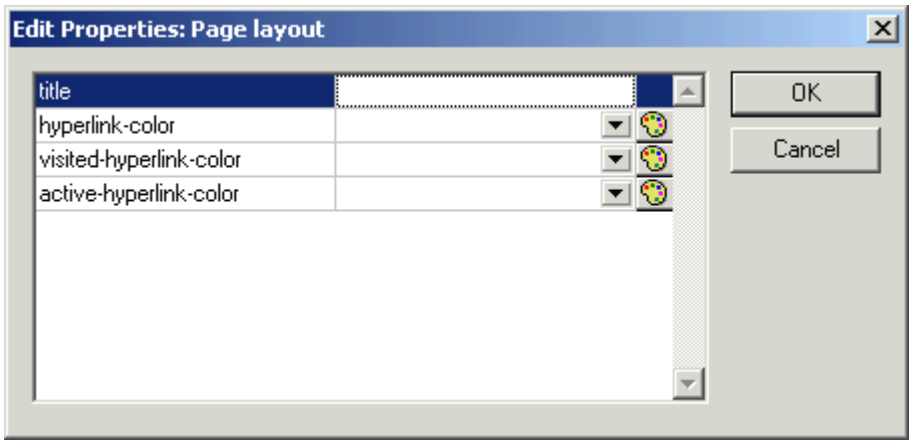
The **Properties** menu allows you to edit the properties of:

- the HTML and PDF output pages, and
- a variety of STYLEVISION Power Stylesheet components, such as tables, lists, and data-entry devices

These properties are desribed in the following sections.

8.10.1 HTML Page...

The **HTML Page...** command allows you to define certain properties of the output HTML page. These are the page title, which appears in the title bar of the HTML page, and the colors of the links in the document.



Note: The properties defined here take precedence over the individual HTML element settings.

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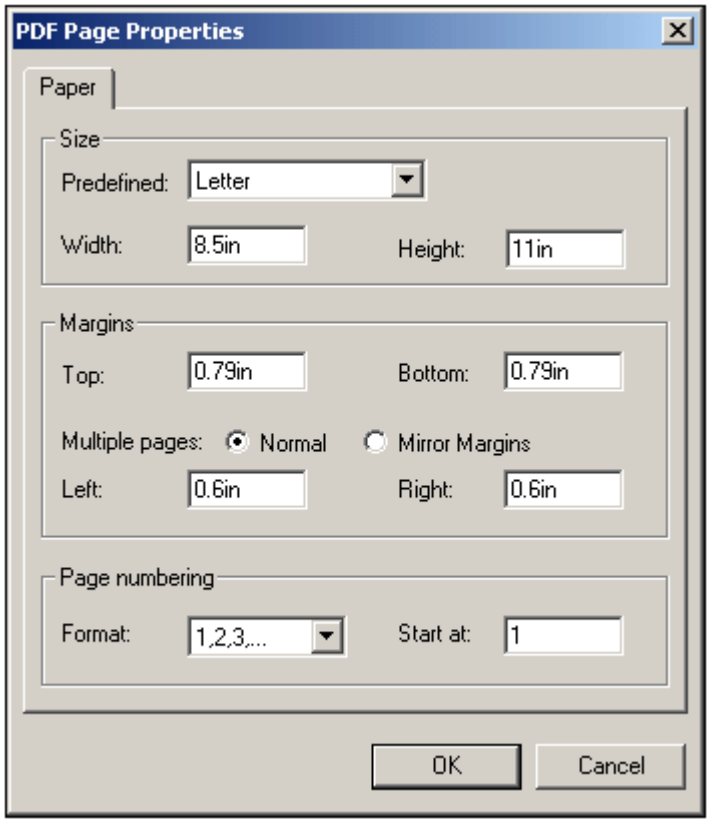
8.10.2 PDF Page...

The **PDF Page...** command allows you to specify the PDF page size and margins as well as the page numbering to use.



Note: These settings apply to the PDF page output, and not to the printout of the Authentic View of an XML document. For explanations of these properties, see PDF page definition.

Also see: Setting up STYLEVISION and PDF processing and page layout

8.10.3 Table...

The **Table...** command opens the Table Properties dialog box, which allows you to define specific properties of static and dynamic tables. See Formatting static and dynamic tables and Table Properties for details.

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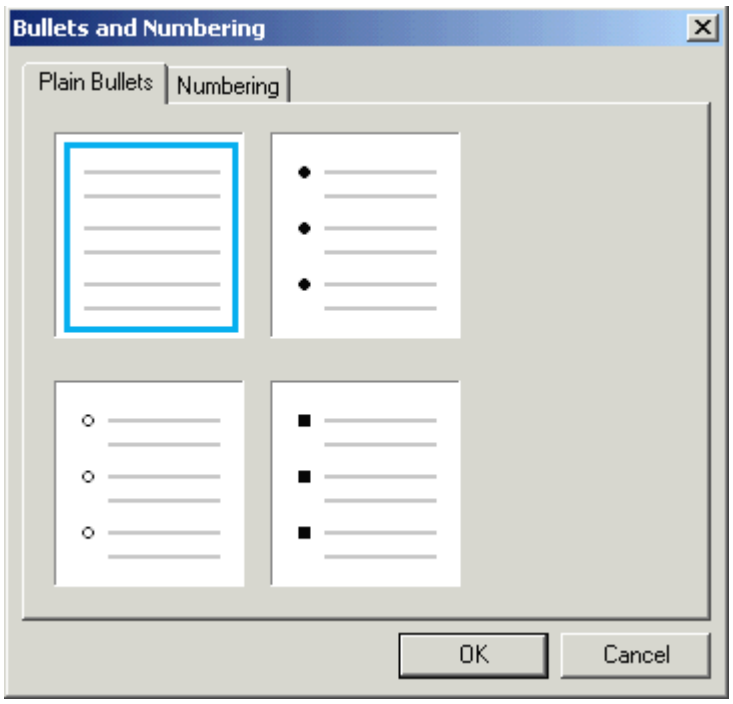
8.10.4 Bullets and Numbering...

The **Bullets and Numbering...** command allows you to **edit** the bullet and numbering styles of the selected list; in the case of a numbered list, the initial number can also be specified.



Note: This command should be used to change the list style of an already created list.

Also see: Lists and Bullets and Numbering.

8.10.5 Edit DB Filters...

The **Edit DB Filters...** command allows you to create and edit a filter for a database table (a DB Filter). A DB Filter determines what data from the selected database table is imported and displayed. A DB Ffilter consists of one or more criteria. When you specify criteria, you use an expression, which is a combination of operators (**=** or **>**) and values (text or numbers). Additionally, criteria can be joined by the logical operators **AND** or **OR**.

For details about creating and working with DB Filters, see DB Filters in the How To Use section and Edit DB Filter... in the **Edit** menu.

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8.10.6 Clear DB Filters

The **Clear DB Filter** command deletes the filter after asking for and receiving a confirmation from you.

For details about working with DB Filters, see DB Filters in the How To Use section.

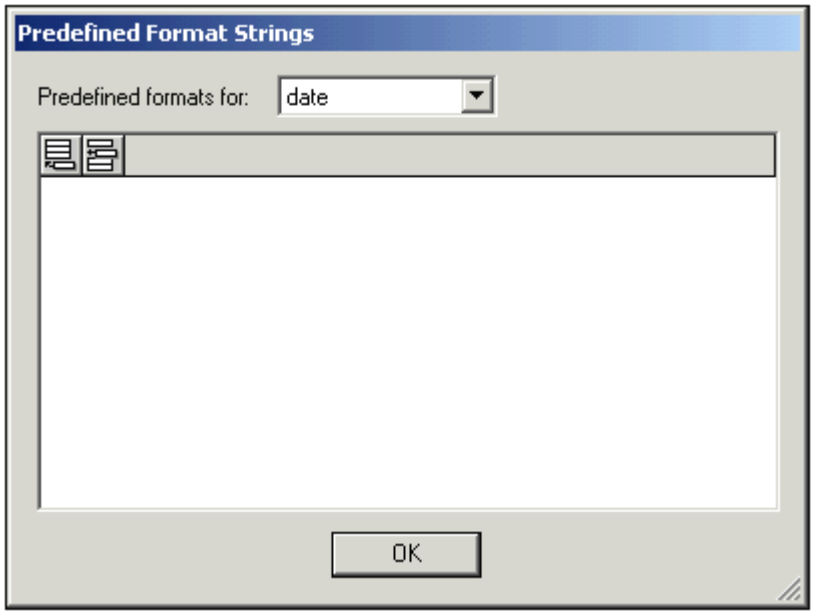
8.10.7 Predefined Format Strings

Any `(contents)` placeholder, input field, or Auto-Calculation which is of a `numeric`, `date`, `time`, `dateTime` or `duration` datatype can be assigned a custom format with the Input Formatting dialog. In the Input Formatting dialog, you can either create a format directly or select from a drop-down list of predefined formats. This list consists of two types of predefined formats:

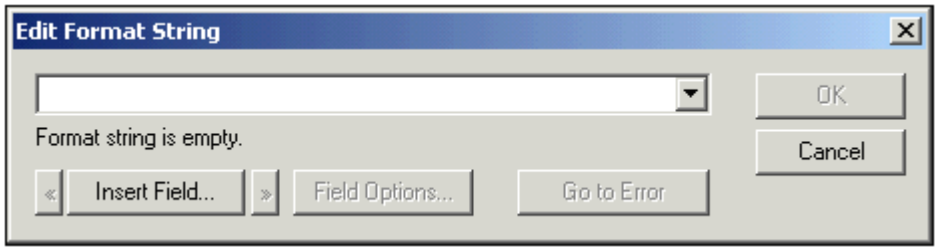
- supplied predefined formats (delivered with STYLEVISION), and
- customized predefined formats that you define with the **Predefined Format Strings** command. These customized formats are created for the currently open SPS file—and not for the entire application. After the customized formats have been defined, the SPS File must be saved in order for the formats to be available when the file is next opened.

Creating a predefined format string
A predefined format string is specific to a datatype. To create a predefined format string, do the following:

1. Click **Properties | Predefined Format Strings...**. The following dialog appears:



2. Select a datatype from the drop-down list in the combo box, and then click the Append or Insert icon as required. This pops up the Edit Format String dialog:



If you click the down arrow of the combo box, a drop-down list with the supplied predefined formats for that datatype is displayed (shown in the screenshot below).

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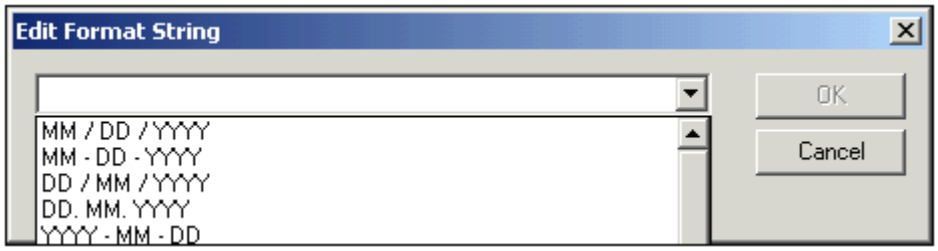

You can either select a format from the list and modify it, or you can enter a format directly into the input field. The syntax for defining a format is explained in Input Formatting. If you need help with the syntax, use the **Insert Field...** and **Field Options...** buttons.

3. After you have defined a format, click OK. The format string is added to the list of predefined formats for that datatype, and it will appear as an option in the Input Formatting dialog (of the current SPS file) when the selected element is of the corresponding datatype.

Note:

- You can add as many custom format strings for different datatypes as you want.
- The sequential order of format strings in the Predefined Format Strings dialog determines the order in which these format strings appear in the Input Formatting dialog. The customized format strings appear above the supplied predefined formats.
- To edit a custom format string, double-click the entry in the Predefined Format Strings dialog.
- To delete a custom format string, select it, and click the Delete button in the dialog.

8.10.8 Selected object...

The **Selected object...** command enables you to edit the properties of the selected STYLEVISION Power Stylesheet component. It is enabled when a data-entry device or a horizontal rule is selected. When you click this command, the properties dialog of the selected component type opens. Enter the required value and click OK.

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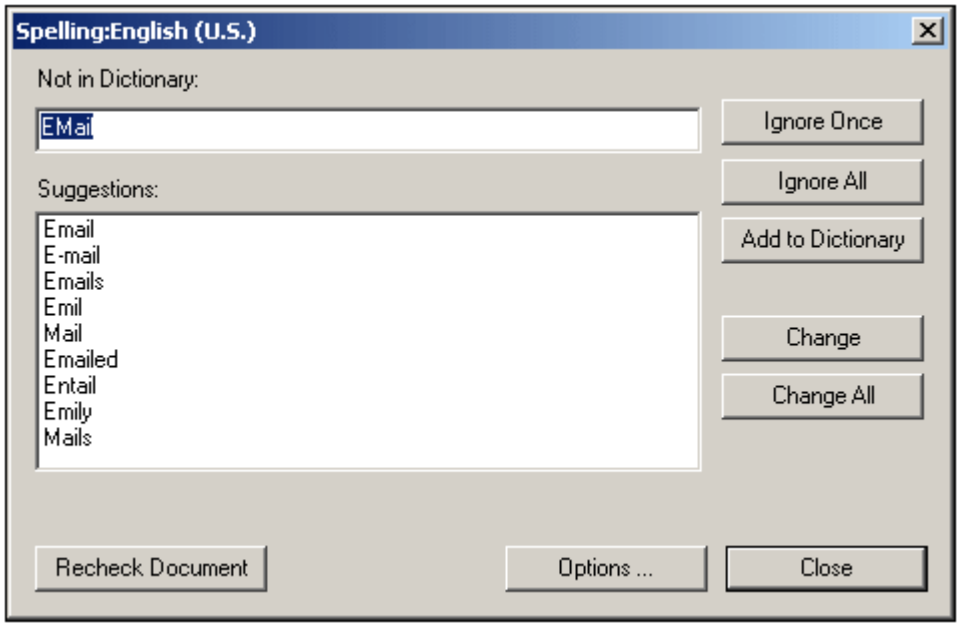
8.11 Tools

The **Tools** menu contains the Spell-checker command and commands that enable you to customize STYLEVISION. Among other options, you can customize the toolbar, and specify spell-checking and FO processor options.

8.11.1 Spelling...

The **Spelling... (Shift+F7)** command runs a spell check on the STYLEVISION Power Stylesheet. The dialog shown below appears. Words that are not present in the selected dictionary are displayed in the Not in Dictionary field of the dialog and highlighted in the Design Document.



You can then select an entry from the list in the Suggestions pane and click **Change** or **Change All** to change the highlighted instance of this spelling or all its instances, respectively. (Double-clicking a word in the Suggestions list causes it to replace the unknown word.) Alternatively, you can ignore *this instance* of the unknown word (**Ignore Once**); or ignore *all instances* of this unknown word (**Ignore All**); or add this unknown word to the (default user) dictionary (**Add to Dictionary**). Adding the unknown word to the dictionary causes the spell-checker to treat the word as correct and to pass on to the next word not found in the dictionary.

After all the words not found in the dictionary have been displayed in turn, and an action taken for each, the spell-checker displays the message: "The spelling check is complete." You can then recheck the document from the beginning (**Recheck Document**) or close the dialog (**Close**).

The **Options...** button opens the Spelling options... dialog, in which you can specify options for the spell check.

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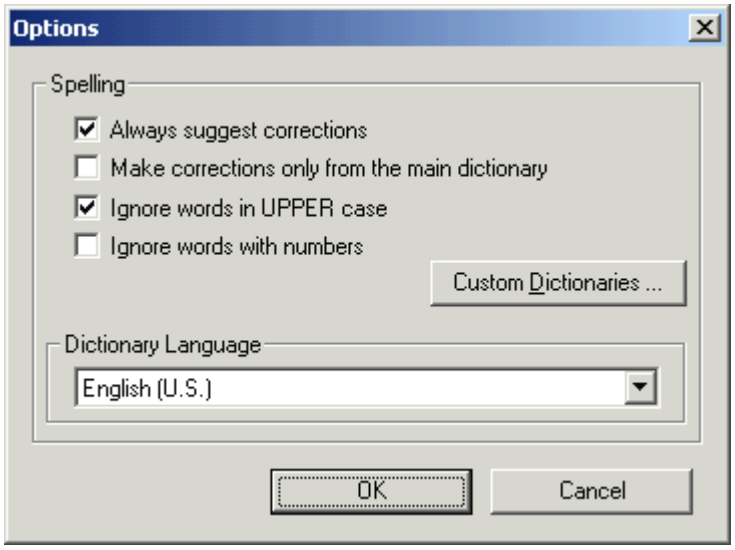
8.11.2 Spelling options...

The **Spelling options...** command opens a dialog box (shown below) in which you specify options for the spell check.



Always suggest corrections
Selecting this option causes suggestions from the current dictionary (main dictionary plus listed custom dictionaries) to be displayed in the Suggestions list box. Oherwise no suggestions will be shown.

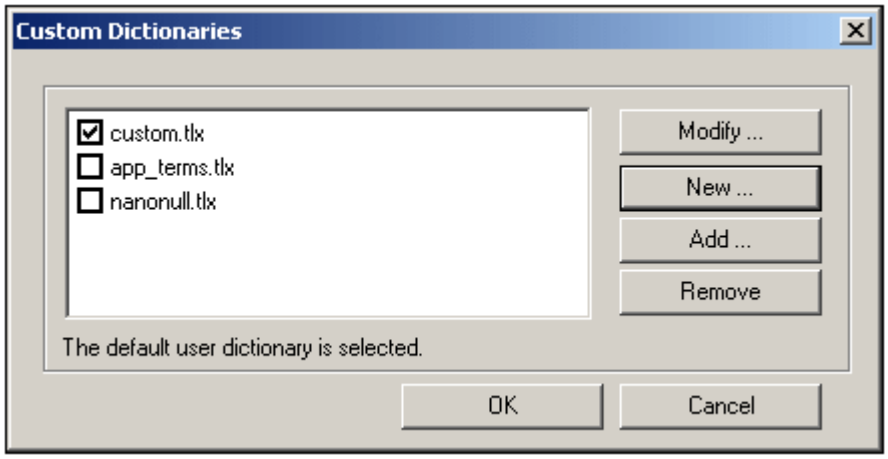
Make corrections only from main dictionary:
Selecting this option causes only the main dictionary to be used; none of the custom dictionaries is used. Additionally, the Custom Dictionaries... button is disabled, which prevents editing of the custom dictionaries.

Ignore words in UPPER case:
Selecting this option causes all upper case words to be ignored.

Ignore words with numbers:
Selecting this option causes all words containing numbers to be ignored.

Dictionaries
Each spell-checking round uses the current dictionary. The current dictionary consists of one uneditable main dictionary and the listed custom dictionaries. The number of available main dictionaries is fixed. You select a main dictionary from the drop-down menu in the Dictionary Language combo box. To edit the list of custom dictionaries used in a spell-check, or to edit the contents of a custom dictionary, click the Custom Dictionaries... button and select the required custom dictionary from the list of custom dictionaries.

When you click the **Custom Dictionaries...** button, the following dialog appears:



Editing the Custom Dictionaries list
The listed custom dictionaries are part of the current dictionary.

- To add an existing custom dictionary to the list, click the **Add...** button; then browse for the required dictionary, and select it.
- To remove a custom dictionary from the list (and, therefore, from the current dictionary), select the dictionary to be removed and click the **Remove** button. This causes the dictionary to be removed from the list. It is, however, not deleted, and can be added to the list subsequently.
- To create a new custom dictionary and add it to the list, click the **New...** button, open the folder in which the new dictionary is to be created, and give the new dictionary a name. This file must have a `.tlx` suffix.

When you start a spell check, all dictionaries listed in the Custom Dictionaries list box are searched. If you want to limit the search to specific dictionaries, use the Remove command to remove form the list those dictionaries you do not want searched.

The **default user dictionary** is the custom dictionary to which unknown words encountered in a spell-check are added when you click the Add to Dictionary command (during the spell-check). Select the default user dictionary by clicking the check box next to the dictionary you wish to make the default user dictionary.

Modifying the contents of a custom dictionary
To modify the content of a custom dictionary, click the custom dictionary to be modified, and click **Modify...**. This opens the dictionary editor (shown below for the dictionary `custom.tlx`).

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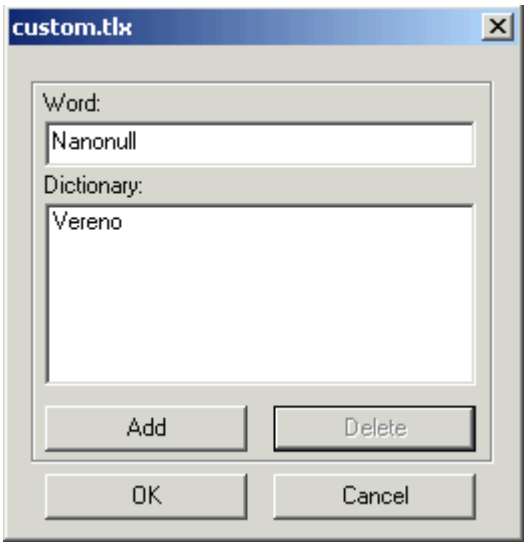
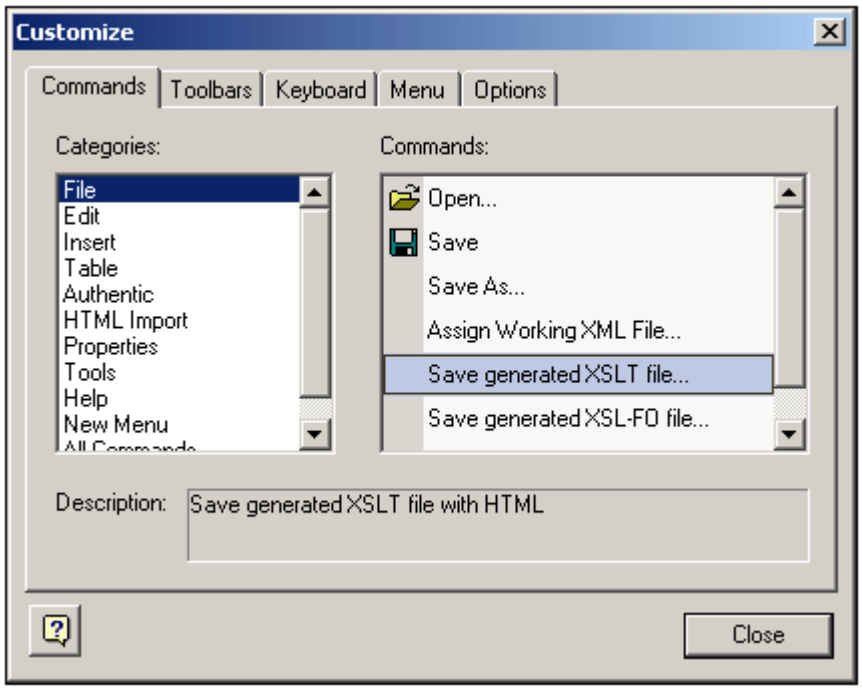


You can now add words to the dictionary and delete words. To add a word, place the cursor in the Word input field, enter the word, and click Add. To delete a word, select the word in the Dictionary pane, and click Delete.

8.11.3 Customize...

The customize command lets you customize STYLEVISION to suit your personal needs.

Commands
The **Commands** tab of the Customize dialog allows you to place individual commands in the menu bar and the toolbar.



To add a command to the menu bar or toolbar, select the command in the Commands pane of the Commands tab, and drag it to the menu bar or toolbar. When the cursor is placed over a valid position an I-beam appears, and the command can be dropped at this location. If the location is invalid, a check mark appears. When you drop the command it is created as an icon if the command already has an associated icon; otherwise the command is created as text. After adding a command to the menu bar or toolbar, you can edit its appearance by right-clicking it and then selecting the required action.

To delete a menu bar or toolbar item, with the Customize dialog open, right-click the item to be deleted, and select Delete.

Note:

- The customization described above applies to the application, and applies whether a document is open in STYLEVISION or not.
- To reset menus and toolbars to the state they were in when STYLEVISION was installed, go to the Toolbars tab and click the appropriate Reset button.

See also: Tools.

Toolbars
The **Toolbars** tab allows you to activate or deactivate specific toolbars, to show text labels for toolbar items, and to reset the menu bar and toolbars to their installation state.

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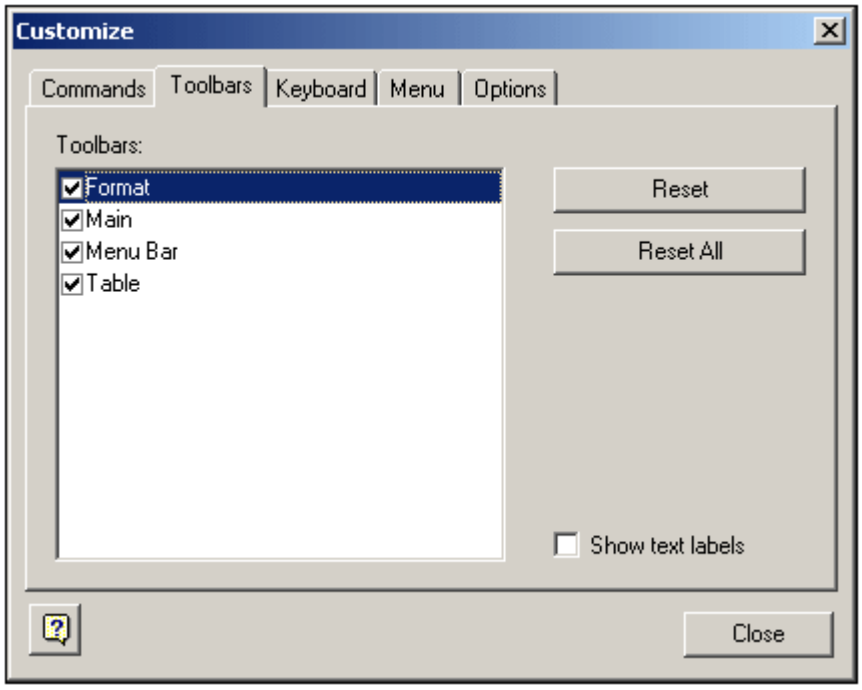


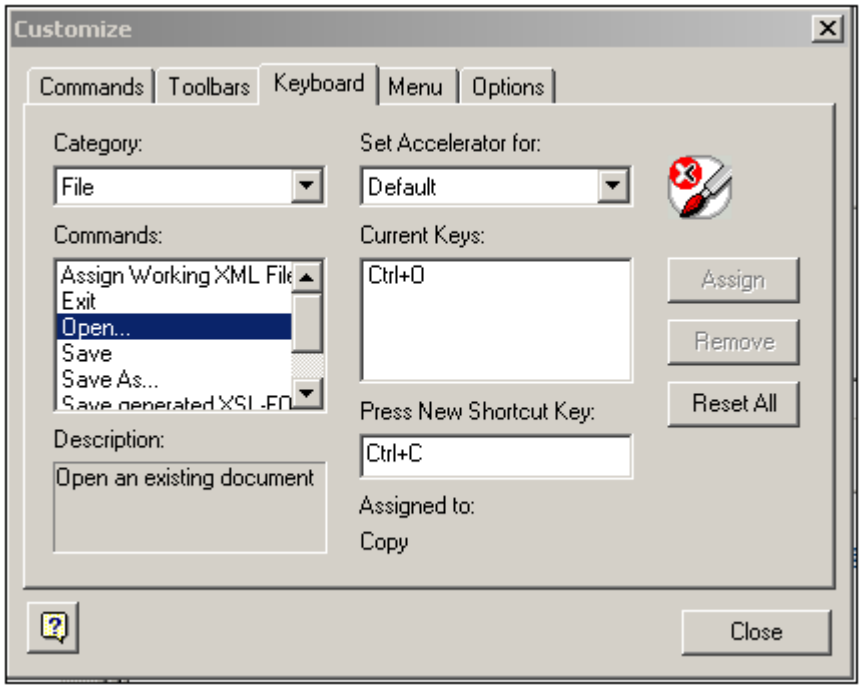
The STYLEVISION interface displays a menu bar and three toolbars (Format, Main, and Table).

Toolbars
Each toolbar can be divided into groups of commands. Commands can be added to a toolbar via the Commands tab. A toolbar can be dragged from its docked position to any location on the screen. Double-clicking a toolbar's (maximized or minimized) title bar docks and undocks the toolbar.

In the Toolbars tab of the Customize dialog, you can toggle a toolbar on and off by clicking in its checkbox. When a toolbar is selected (in the Toolbars tab), you can cause the text labels of that toolbar's items to be displayed by clicking the **Show text labels** check box. You can also reset a selected toolbar to the state it was in when STYLEVISION was installed by clicking the **Reset** button. You can reset all toolbars and the menu bar by clicking the **Reset All** button.

Menu Bar
Commands can be added to, and items deleted from, the menu bar: see Commands above. To reset the menu bar to the state it was in when STYLEVISION was installed, select Menu Bar in the Toolbars tab of the Customize dialog, and click the **Reset** button. (Clicking the **Reset All** button will reset the toolbars as well.)

Keyboard
The **Keyboard** tab allows you to define (or change) keyboard shortcuts for any STYLEVISION command.



To assign a shortcut to a command

1. Select the category in which the command is by using the Category combo box.
2. Select the command you want to assign a shortcut to in the Commands list box.
3. Click in the Press New Shortcut Key input field, and press the shortcut keys that are to activate the command. The shortcut immediately appears in the Press New Shortcut Key input field. If this shortcut has already been assigned to a command, then that command is displayed below the input field. (For example, in the screenshot above, Ctrl+C has already been assigned to the Copy command and cannot be assigned to the Open File command.) To clear the New Shortcut Key input field, press any of the control keys, Ctrl, Alt, or Shift.
4. Click the **Assign** button to permanently assign the shortcut. The shortcut now appears in the Current Keys text box.

To deassign (or delete) a shortcut

1. Select the command for which the shortcut is to be deleted.
2. Click the shortcut you want to delete in the Current Keys list box.
3. Click the **Remove** button (which has now become active).

To reset all keyboard assignments

1. Click the **Reset All** button to go back to the original, installation-time shortcuts. A dialog box appears prompting you to confirm whether you want to reset all keyboard assignments.
2. Click Yes if you want to reset all keyboard assignments.

Set accelerator for
Currently no function is available.

Menu
The **Menu** tab allows you to customize the main menu bar as well as the context menus (right-click menus).

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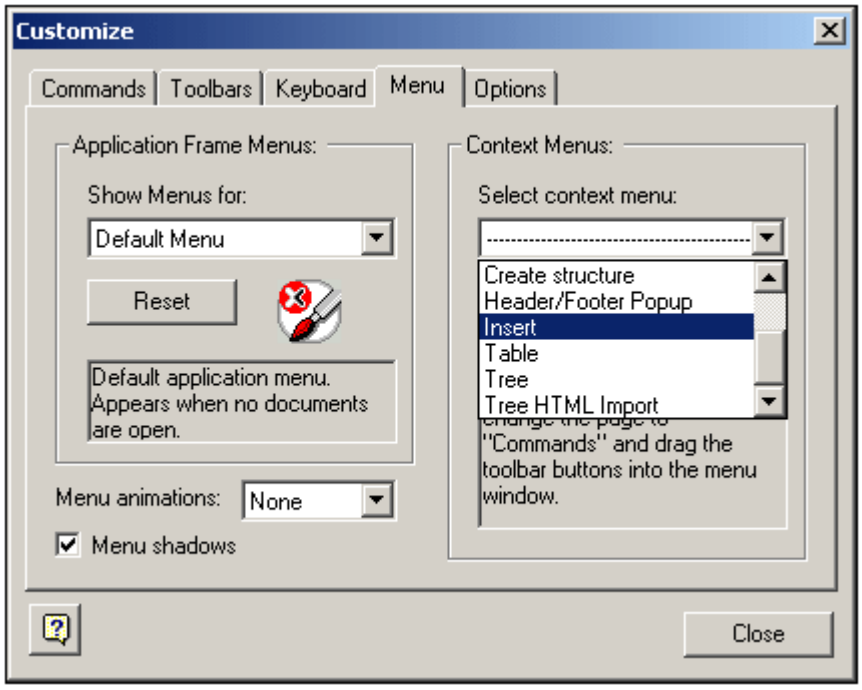


To customize a menu

1. Select the menu bar you want to customize (Default Menu currently).
2. Click the **Commands** tab, and drag the commands to the menu bar of your choice.

To delete commands from a menu

1. Click right on the command or icon representing the command, and
2. Select the **Delete** option from the popup menu,
   or,
1. Select **Tools | Customize** to open the Customize dialog box, and
2. Drag the command away from the menu and drop it as soon as the check mark icon appears below the mouse pointer.

To reset either of the menu bars

1. Select the Default Menu entry in the combo box)
2. Click the **Reset** button just below the menu name. A prompt appears asking if you are sure you want to reset the menu bar.

To customize a context menu (a right-click menu)

1. Select the context menu from the combo box.
2. Click the **Commands** tab and drag the commands to the context menu that is now open.

To delete commands from a context menu

1. Click right on the command or icon representing the command, and
2. Select the **Delete** option from the popup menu
   or
1. Select **Tools | Customize** to open the Customize dialog box, and
2. Drag the command away from the context menu and drop it as soon as the check mark icon appears below the mouse pointer.

To reset a context menu

1. Select the context menu from the combo box, and
2. Click the **Reset** button just below the context menu name. A prompt appears asking if

you are sure you want to reset the context menu.

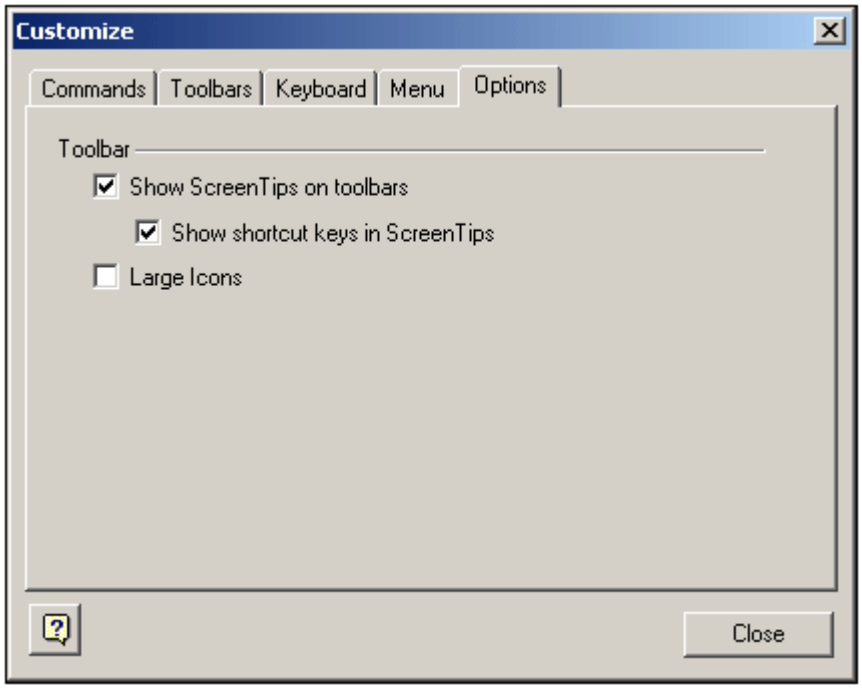
To close a context menu window

- Click on the **Close icon** at the top right of the title bar, or
- Click the Close button of the Customize dialog box.

Menu animations
The menu animation option specifies the way a menu is displayed when a menu is clicked. Select an option from the drop-down list of menu animations.

Menu shadows
If you wish to have menus displayed with a shadow around it, select this option. All menus will then have a shadow.

Options
The **Options** tab allows you to customize additional features of the toolbar.



Screen Tips for toolbar items will be displayed if the Show Screen Tips option is checked. The Screen Tips option has a sub-option for whether shortcuts (where available) are displayed in the Screen Tips or not.

Toolbar items can also be displayed as large icons. To do this, check the Large Icons option.

See also: Tools.

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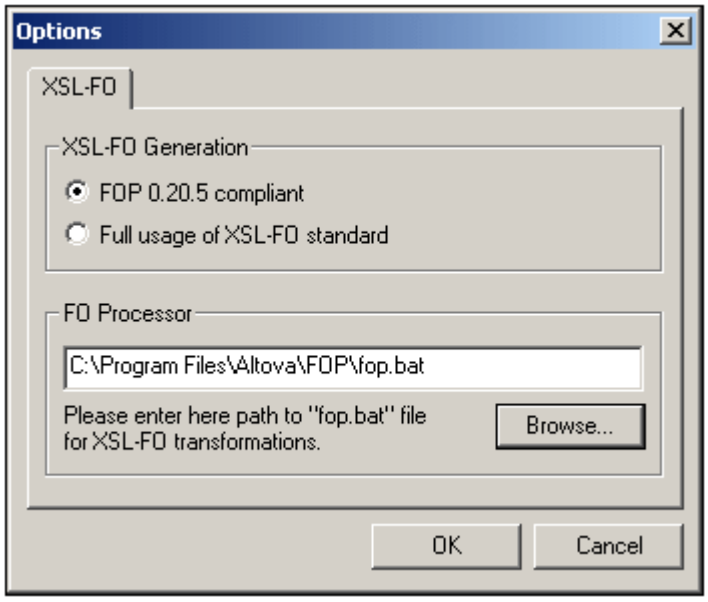
8.11.4 XSL-FO Options...

The **XSL-FO Options...** opens a dialog in which you specify settings for the processing of the XSL-FO document. These settings are required in order to enable the PDF Preview.



Once these settings are correctly made, each time the PDF Preview tab is clicked, the following happens:

1. An XSL-FO document is generated (behind the interface) by processing the Working XML File with the currently active STYLEVISION Power Stylesheet.
2. The XSL-FO is then processed by an FO processor to generate the PDF that is displayed in the PDF Preview window.

FO Processor
You can use any FO processor of your choice. All you have to do is enter the path to the processor's executable in this dialog. For details, see Setting up STYLEVISION.

XSL-FO Generation
Selecting the **FOP 0.20.5 compliant** option filters out those FOP properties that have not yet been implemented in the latest version of FOP. Selecting the **Full XSL-FO standard** option will not filter out any properties when the XSLT-for-FO is being generated.

Depending on your selection, the XSLT-for-FO will be created with or without the objects, properties, and values that are beyond the compliance level of FOP 0.20.5. You should be aware of the possible outcomes from this point in the processing. These are as follows:

- If you have selected FOP compliance and use FOP as your processor, then the PDF generation should work fine.
- If you have selected full usage of the XSL-FO standard and use FOP as your processor, then any formatting object or property in the FO document that is not supported by the current version of FOP will cause FOP to generate either a warning or an error. An error is fatal, and no PDF will be generated.
- If you use a processor other than FOP, the success of the transformation will depend upon the compliance level of the processor.

For standard use, we recommend using FOP and selecting FOP 0.20.5 compliant in the Options dialog.

Note: The XSLT-for-FO that you generate with the **File | Save generated XSL-FO file...** command will be either in compliance with FOP 0.20.5 or with the full XSL-FO standard, depending on the selection you make for the XSL-FO Generation option in this dialog. Any error will only be reported when the FO document is processed by the FO processor.

Also see: Setting up STYLEVISION

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8.12 Help

The **Help** menu contains commands to access the onscreen halp manual for STYLEVISION, commands to provide information about STYLEVISION, and links to support pages on the Altova web site. The Help menu also contains the Registration dialog, which lets you enter your license key-code once you have purchased the product.

8.12.1 Table of contents...

The **Table of Contents...** command opens the onscreen help manual for STYLEVISION with the Table of Contents displayed in the left-hand-side pane of the Help window. The Table of Contents provides a good overview of the entire Help document. Clicking an entry in the Table of Contents takes you to that topic.

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8.12.2 Index...

The **Index...** command opens the onscreen help manual for STYLEVISION with the Keyword Index displayed in the left-hand-side pane of the Help window. The index lists keywords and lets you navigate to a topic by double-clicking the keyword. If a keyword is linked to more than one topic, you are presented a list of the topics to choose from.

8.12.3 Search...

The **Search...** command opens the onscreen help manual for STYLEVISION with the Search dialog displayed in the left-hand-side pane of the Help window. To search for a term, enter the term in the input field, and press Return. The Help system performs a full-text search on the entire Help documentation and returns a list of hits. Double-click any item to display it.

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8.12.4 Registration...

When you start STYLEVISION for the first time, you are presented with the Registration dialog box. You must enter your unique license key-code in this dialog to register your product with Altova. Registering your product is required to activate your license and unlock your software. Eligibility for technical support depends upon the type of license you have purchased, so registration is required in order for you to avail of technical support. If you need to manage your licenses or change licenses, you can access the Registration dialog at any time with the **Registration...** command.

You can register using either a free evaluation key or a permanent key-code. Issues relating to each type of key are described below.

Free evaluation key
To activate the software for a 30-day evaluation, click the **Request FREE evaluation key...** button. Enter your name, company, and e-mail address in the dialog that appears, and click Request Now! The evaluation key is sent to the e-mail address you entered and should reach you in a few minutes. Now enter the key in the key-code field of the registration dialog box and click OK to start working with STYLEVISION.

When you are ready to order a licensed version of STYLEVISION, you can use the **Order license key...** button in the registration dialog or **Help | Order form...** to proceed to the secure Altova Online Shop.

License Key-Code
Your permanent license will be of one of two types: a single-user or multi-user license. Both types are sent by e-mail.

A **single-user license** contains your license-data and includes your name, company, e-mail, and key-code. Please make sure that you enter the data required in the registration dialog exactly as given in your license e-mail.

A **multi-user license** contains your license-data and includes your company name and key-code. Please make sure that you enter the data required in the registration dialog exactly as give in your license e-mail. Also enter your personal name in the name field. Note that the STYLEVISION License Agreement does not allow you to install more than the licensed number of copies of STYLEVISION on the computers in your organization (per-seat license).

8.12.5 Order form...

The **Order form...** command is a link to the Altova Online Shop. Use this command when you wish to place an order for a licensed version of any Altova software.

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8.12.6 Support Center...

The **Support Center...** command is a link to the Altova Support Center on the Internet. The Support Center provides FAQs, discussion forums where problems are discussed, and access to Altova's technical support staff.

8.12.7 FAQ on the web...

The **FAQ on the web...** command is a link to Altova's FAQ database on the Internet. The FAQ database is constantly updated as Altova support staff encounter new issues raised by customers.

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8.12.8 Components download...

The **Components download...** command is a link to Altova's Component Download Center on the Internet. From here you will be able to download a variety of companion software to use with Altova products. Such software ranges from XSLT and XSL-FO processors to Application Server Platforms. The software available at the Component Download Center is typically free of charge.

8.12.9 XMLSPY on the Internet...

The **XMLSPY on the Internet...** command is a link to the Altova web site (http://www.altova.com) on the Internet.

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8.12.10 Japanese distributor...

If you are located in Japan, you may prefer to contact our Japanese distributor on the Internet. Click **Japanese distributor...** for the Japanese-language web site of the Japanese distributor of Altova products.

8.12.11 About STYLEVISION...

The **About STYLEVISION...** command displays the splash window and version number of your product.

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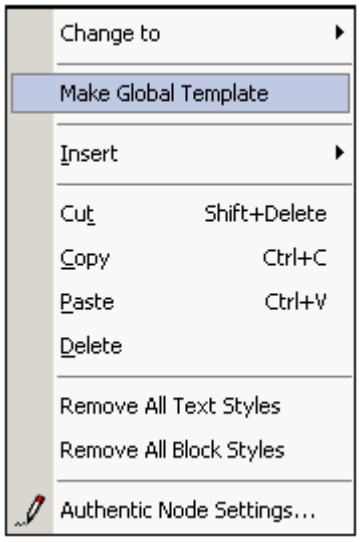
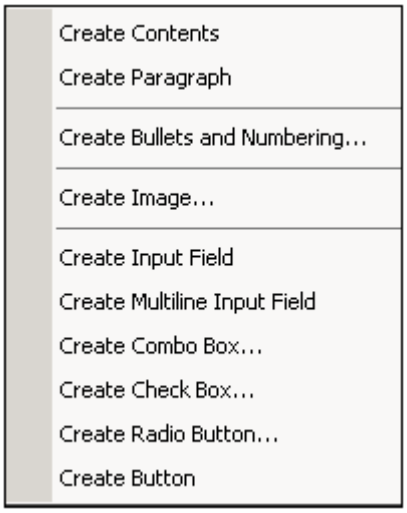
8.13 Context menus

Context menus are opened by right-clicking a STYLEVISION Power Stylesheet component in the Design Window. What items are displayed in the context menu depends on what component you right-click; they are commands relevant to the selected component. A typical context menu is shown below.



The **Change to** and **Insert** menu items each has a sub-menu. These sub-menus are described in the sub-sections of this section.

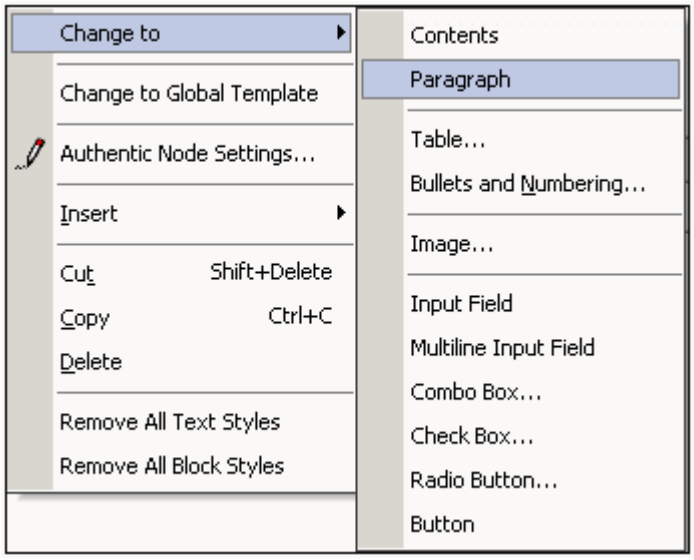
There is one other context menu you will encounter. This context menu (shown below) pops up when you drag an element or attribute from the Schema Window and drop it into the Design Window. It requires you to specify what component type the element or attribute is to be created as.



The commands in this menu perform the same task as the corresponding commands in the **Change to** submenu above.

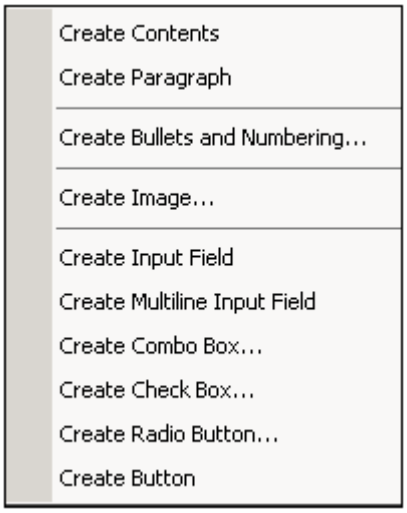
8.13.1 Change to

The **Change to** item of a context menu has a number of subitems. These are shown in the figure below and are described below.



The Change to submenu allows you to change the component type (see Document design process) of the selected node. Note that the Change to submenu is available when a node is selected; it is not available when the component within a node is selected.

The commands in the Change to submenu perform the same tasks as the items in the context menu that appears (shown below) when a element or attribute is dragged from the Schema Window into the Design Window.



The explanations of the Change to commands given below apply to the corresponding Create commands as well.

Change to Contents
The Change to Contents option causes the text content of the selected node (element or attribute) and of all its descendants to be output *in document order*. There will be no whitespace between text output of descendant elements, and the output document structure and all local inline formatting will disappear. However, if a global template is in use for the selected element

or any of its descendants, the inline properties of that template will be retained for that element.

Change to Paragraph
The Change to Paragraph option causes the text content of the selected node (element or attribute) and of all its descendants to be output *in document order* and within a single paragraph. No new paragraph will be generated for any descendant element. There will be no whitespace between descendant elements, and the output document structure and all local inline formatting will disappear. The inline formatting of global templates will, however, be retained.

Change to Table
The Change to Table option changes the component type of the selected element to a dynamic table. It can be applied to elements with children; it cannot be applied to attributes or to elements with no child. How to specify table options is described in Creating dynamic tables.

Change to Bullets and Numbering
The Change to Bullets and Numbering option changes the component type of the selected element to an itemized or a numbered list. A new list item will be created for each instance of the selected element. For usage of lists in STYLEVISION Power Stylesheets, see Lists.

Change to Image
The Change to Image option changes the component type of the selected node (element or attribute) to an image that you browse for.

Change to [Data-entry device]
Data-entry devices are input fields, combo boxes, check boxes, etc. The various types of data-entry devices used in STYLEVISION Power Stylesheet are described in the section Data-entry devices. You can change the component type of a selected node to a data-entry device. How to specify settings for the data-entry device is described in Data-entry devices.

Chapter 9

Authentic View

9 Authentic View

Authentic View enables you to edit XML documents **based on STYLEVISION Power Stylesheets (also called .sps files or SPS files), which are created in STYLEVISION**.

Authentic View in Altova products
The term Authentic View is used in this and other Altova documentation to refer to the view of an XML document that is controlled by a STYLEVISION Power Stylesheet and that enables you to edit an XML document graphically. Authentic View is available in the Altova products listed below. It does not refer to any one product alone.

- As a separate view of the XML document within XMLSPY 2004
- As a separate view of the XML document within AUTHENTIC 2004 Desktop Edition (which is available free of charge)
- As a Browser Plug-In for Internet Explorer: AUTHENTIC 2004 Browser Edition (which is available free of charge)
- As a preview window in STYLEVISION 2004 (see limitations below)

Authentic View in these Altova products are grouped as follows:

- The Authentic View interface available in **XMLSPY 2004** and **AUTHENTIC 2004 Desktop Edition** is the same and is described in this documentation.
- **AUTHENTIC 2004 Browser Edition** presents the Authentic View interface in Microsoft's Internet Explorer window. The available functionality is defined by the developer who creates the STYLEVISION Power Stylesheet and sets up AUTHENTIC 2004 Browser Edition. The general editing functions are the same as in the XMLSPY 2004 and AUTHENTIC 2004 Desktop Edition interfaces, and they work as described in this documentation.
- **STYLEVISION 2004** is used to create the STYLEVISION Power Stylesheet that controls the display and data-entry of the document in Authentic View (see Authentic View and STYLEVISION Power Stylesheets). STYLEVISION has a window for previewing the Authentic View of the Working XML File, thus enabling the designer of the STYLEVISION Power Stylesheet to try out the Authentic View directly in STYLEVISION. This preview window is similar to Authentic View in the XMLSPY 2004 and AUTHENTIC 2004 Desktop Edition interfaces, but has a few limitations (see below). Instead of using entry helpers, context menus can be used for data manipulation. Changes made in the Authentic Preview are saved to the Working XML File.

Limitations of Authentic Preview in STYLEVISION

- Entry helpers unavailable (use context menu)
- Inserting XML Tables disabled
- Text State Icons disabled (use context menu).

Authentic View documentation
The Authentic View documentation consists of the following sections:

- An introduction, which describes Authentic View in relation to STYLEVISION Power Stylesheets, highlights the advantages of Authentic View, and explains the concepts behind the working of Authentic View
- A description of the Authentic View interface
- A How To section for commonly used Authentic View features

Note:

- Authentic Menu commands are described in the User Reference section of your product documentation.

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- A tutorial for Authentic View is contained in the XMLSPY 2004 and AUTHENTIC 2004 Desktop Edition documentation. This tutorial should be done with the Authentic View of XMLSPY 2004 or AUTHENTIC 2004 Desktop Edition, not in the Authentic Preview of STYLEVISION (which does not have all the functionality of XMLSPY 2004 or AUTHENTIC 2004 Desktop Edition).

Related documentation

- Setting up the AUTHENTIC 2004 Browser Edition for Authentic View is described in the documentation for AUTHENTIC 2004 Browser Edition.

9.1 Authentic View Interface

In STYLEVISION, you can preview the Authentic View of an XML document that has been assigned as the Working XML File to the currently open STYLEVISION 2004. This preview is available when you click the Authentic Preview tab in the Main Window of STYLEVISION. In order for the Authentic Preview to be enabled, you must assign the currently open STYLEVISION Power Stylesheet a Working XML File (**File | Assign Working XML File**).

This section provides:

- an overview of the interface
- a description of the toolbar icons specific to Authentic View
- a description of viewing modes available in the main Authentic Preview window
- a description of the context menus available at various points in the Authentic View of the XML document

The menu commands available in Authentic View are described in the User Reference section of your product documentation. The use of special Authentic View features is described in the How To section of this documentation.

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9.1.1 Overview of the GUI

The Authentic Preview provides you with menu commands, toolbar icons, and context menus with which to edit the XML document that is displayed in the Main Window.

Menu bar
The menus available in the menu bar are described in detail in the User Reference section of your product documentation.

Toolbar
The symbols and icons displayed in the toolbar are described in the section, Authentic View toolbar icons.

Main window
This is the window in which the Working XML document is displayed and edited. It is described in the section, Authentic View main window.

Status Bar
The Status Bar displays the XPath to the currently selected node. In the Authentic Preview of STYLEVISION, the XPath to the currently selected node is indicated in the Schema Tree, where the currenly selected node is highlighted in gray. The XPath in Authentic Preview is not displayed in a status bar.

Context menus
These are the menus that appear when you right-click in the Main Window. The available commands are context-sensitive editing commands, i.e. they allow you to manipulate structure and content relevant to the selected node. Such manipulations include inserting, appending, or deleting a node, adding entities, or cutting and pasting content.

9.1.2 Authentic View toolbar icons

Icons in the Authentic View toolbar are command shortcuts. Some icons will be already familiar to you from other Windows applications or your Altova product, others might be new to you. This section describes icons uniques to Authentic View.

In the description below, related icons are grouped together.

Show/hide XML markup

Markup tags can be turned on or off in Authentic Preview.

Hide markup.

Show all markup. XML element/attribute tags are shown with names.

Editing dynamic table structures

Rows in a **dynamic SPS table** are repetitions of a data structure. Each row represents an occurrence of a single element. Each row, therefore, has the same XML substructure as the next.

The dynamic table editing commands manipulate the rows of a dynamic SPS table. That is, you can modify the number and order of the element occurrences. You cannot, however, edit the columns of a dynamic SPS table, since this would entail changing the substructure of individual element occurrences.

The icons for dynamic table editing commands appear in the toolbar, and are also available in the **Authentic** menu.

Append row to table

Insert row in table

Duplicate current table row (i.e. cell contents are duplicated)

Move current row up by one row

Move current row down by one row

Deletes the current row

Note: These commands apply only to **dynamic SPS tables**. They should not be used inside static SPS tables. The various types of tables used in Authentic View are described in the Using tables in Authentic View section of this documentation.

Define Entities icon

This icon opens the Define Entities dialog, which allows the Authentic View user to define entities that can then be used in the XML document.

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Save XML icon

Saves changes made in Authentic Preview to the Working XML File.

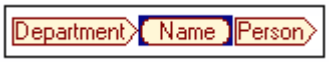
9.1.3 Authentic View main window

There are four viewing modes in Authentic View: Large Markup; Small Markup; Mixed Markup; and Hide All Markup. These modes enable you to view the document with varying levels of markup information. In Authentic Preview of STYLEVISION only two markup modes are available: Hide Markup and Show Large (Full) Markup.

To switch between modes, use the commands in the Authentic menu or the icons in the toolbar (see the previous section, Authentic View toolbar icons).

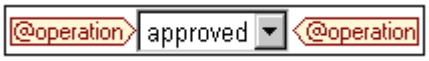
Large markup
This shows the start and end tags of elements and attributes with the element/attribute names in the tags:

The element `Name` in the figure above is **expanded**, i.e. the start and end tags, as well as the content of the element, are shown. An element/attribute can be **contracted** by double-clicking either its start or end tag:



To expand the contracted element/attribute, double-click the contracted tag.

In large markup, attributes are recognized by the symbol @ in the start and end tags of the attribute:



Hide all markup
All XML markup is hidden. Since the formatting seen in Authentic View is the formatting of the printed document, this viewing mode is a WYSIWYG view of the document.

Content display
In Authentic View, content is displayed in two ways:

- Plain text. You type in the text, and this text becomes the content of the element or the value of the attribute.

- Data-entry devices. The display contains either an input field (text box), a multiline input field, combo box, check box, or radio button. In the case of input fields and multiline input fields, the text you enter in the field becomes the XML content of the element or the value of the attribute.

  In the case of the other data-entry devices, your selection produces a corresponding XML value, which is specified in the STYLEVISION Power Stylesheet. Thus the selection "approved" in the display example below could map to an XML value of "1", or to "approved", or anything else; while "not approved" in the display could map to "0", or "not approved", or anything else.

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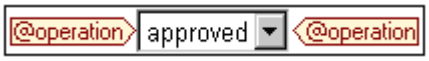
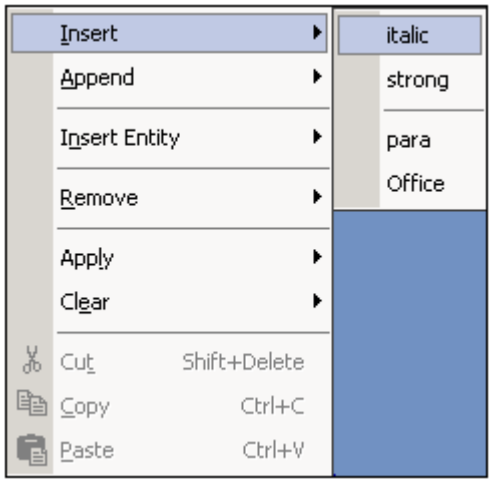


Optional nodes
When an element or attribute is **optional** (according to the referenced schema), a prompt of type "add [*element/attribute*]" is displayed:

Clicking the prompt, adds the element, and places the cursor for data entry. If there are multiple optional nodes, the prompt "add..." is displayed. Clicking the prompt, displays a menu of the optional nodes.

9.1.4 Authentic View context menus

Right-clicking on some selected document content or node pops up a menu with commands relevant to the selection or cursor location. This kind of menu is called a context menu. The context menu that appears depends on where in the document the cursor is. The context menu, with applicable commands enabled, is shown below. The figure below also shows the Insert submenu, which is a list of all elements that can be inserted at that point. Note that the **Insert submenu** shows (above the rule) the elements that can be **inserted within the current element**, and (below the rule) the elements that can be **inserted before the current element**. In the figure below, the current element is the `para` element. The `italic` and `strong` elements can be inserted within the current `para` element. The `para` and `Office` elements can be inserted before the current `para` element.



Pointing over the **Remove** command pops up a menu list consisting of the selected element and all its ancestors up to the document element. Click the element to be removed. This is a quick way to delete an element or any of its ancestors. Note that clicking an ancestor element will remove all its descendants, including the selected element.

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9.2 Authentic View: How To...

This section describes important features of Authentic View in detail. Features have been included in this section either because they are commonly used or require an explanation of the mechanisms or concepts involved.

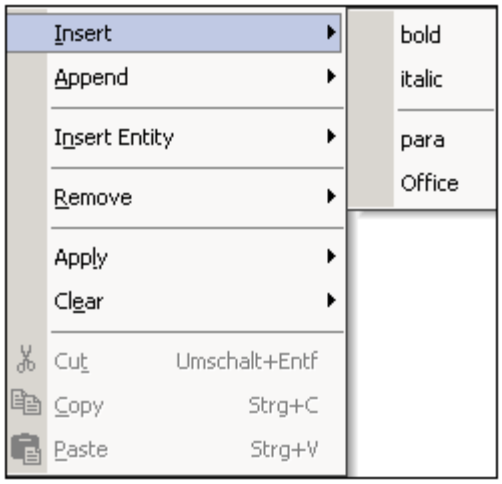
The section explains the following :

- The context menus provide a fast way to access Authentic View's document editing commands. The section Using context menus describes how they are to be used.
- The Date Picker is a graphical calendar that enters dates in the correct XML format when you click a date. See Using the Date Picker.
- An entity is shorthand for a special character or text string. You can define your own entities, which allows you to insert these special characters or text strings by inserting the corresponding entities. See Define Entities for details.
- What image formats can be displayed in Authentic View.

9.2.1 Using context menus

When the cursor is placed within the document, or when some part of the document is selected, right-clicking opens a context menu. Context menus contain all available commands for that location or selection. For example, if the cursor is placed within an element, the context menu will display items for inserting elements before, after, and within the current element; applying, clearing, and removing elements; and so on.

The figure below shows a complete context menu and the Insert submenu, which is a list of elements that can be inserted within and before the current element (above and below the line respectively).



Most of the commands available in the context menu are explained in Authentic View entry helpers and Authentic View Tutorial.

Remove element command
Pointing over the **Remove** command pops up a menu list consisting of the selected element and all its ancestors **up to** the document element. Click the element to be removed. This is a quick way to delete an element or any of its ancestors. Note that clicking an ancestor element will remove all its descendants, including the current element.

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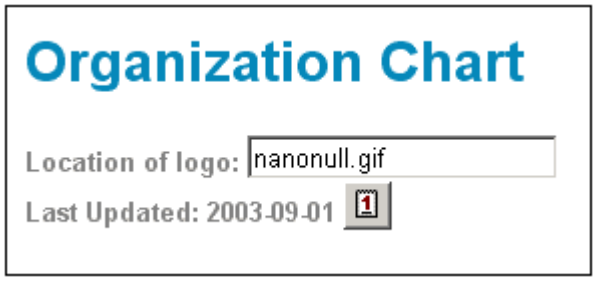
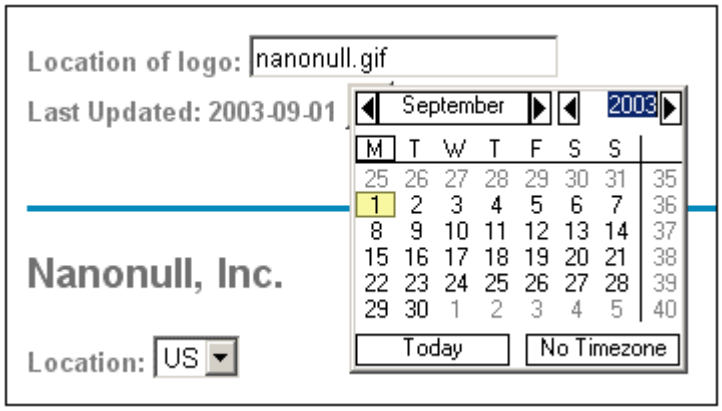
9.2.2 Using the Date Picker

The Date Picker is a graphical calendar used to enter dates in a standard format into the XML document. Having a standard format is important for the processing of data in the document. The Date Picker icon appears near the date field it modifies; it is shown below.



To display the Date Picker (shown below), click the Date Picker icon.



To select a date, click on the desired date, month, or year. The date is enterd in the XML document, and the date in the display is modified accordingly. You can also enter a timezone if this is required.

9.2.3 Define Entities

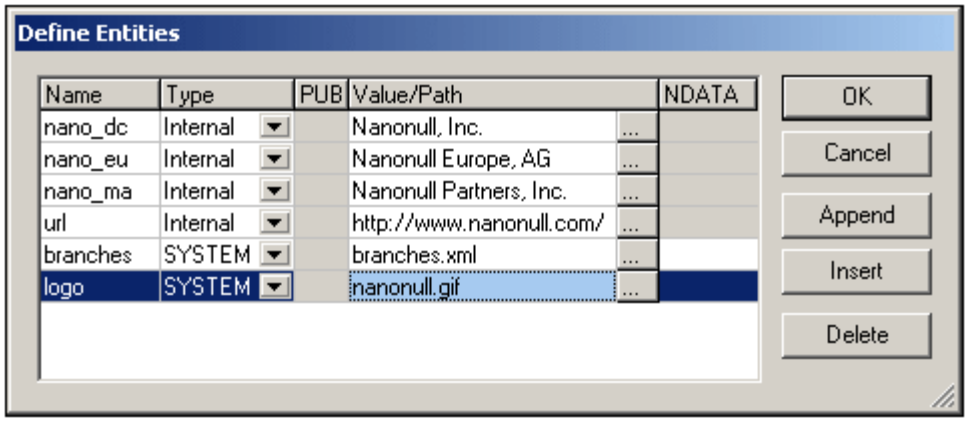
You can define entities for use in Authentic View, whether your document is based on a DTD or an XML Schema. Once defined, these entities are displayed in the Entities Entry Helper and in the **Insert Entity** submenu of the context menu. When you double-click on an entity in the Entities Entry Helper, that entity is inserted at the cursor insertion point.

An entity is useful if you will be using a text string, XML fragment, or some other external resource in multiple locations in your document. You define the entity, which is basically a short name that stands in for the required data, in the Define Entities dialog. After defining an entity you can use it at multiple locations in your document. This helps you save time and greatly enhances maintenance.

There are two broad types of entities you can use in your document: a **parsed entity**, which is XML data (either a text string or a fragment of an XML document), or an **unparsed entity**, which is non-XML data such as a binary file (usually a graphic, sound, or multimedia object). Each entity has a name and a value. In the case of parsed entities the entity is a placeholder for the XML data. The value of the entity is either the XML data itself or a URI that points to a `.xml` file that contains the XML data. In the case of unparsed entities, the value of the entity is a URI that points to the non-XML data file.

To define an entity, do the following:

1. Click **Authentic | Define Entities...**. This opens the Define Entities dialog.



2. Enter the name of your entity in the Name field. This is the name that will appear in the Entities Entry Helper.
3. Enter the type of entity from the drop-down list in the Type field. Three types are possible. An **Internal** entity is one for which the text to be used is stored in the XML document itself. Selecting **PUBLIC** or **SYSTEM** specifies that the resource is located outside the XML file, and will be located with the use of a public identifier or a system identifier, respectively. A system identifier is a URI that gives the location of the resource. A public identifier is a location-independent identifier, which enables some processors to identify the resource. If you specify both a public and system identifier, the public identifier resolves to the system identifier, and the system identifier is used.
4. If you have selected PUBLIC as the Type, enter the public identifier of your resource in the PUBLIC field. If you have selected Internal or SYSTEM as your Type, the PUBLIC field is disabled.
5. In the Value/Path field, you can enter any one of the following:

   - If the entity type is Internal, enter the text string you want as the value of your entity. Do not enter quotes to delimit the entry. Any quotes that you enter will be treated as part of the text string. Note that entities are a good mechanism for including Unicode characters in your document; do this by entering the Unicode number as the value of

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an internal entity.
- If the entity type is SYSTEM, enter the URI of the resource or select a resource on your local network by using the Browse button. If the resource contains parsed data, it must be an XML file (i.e. it must have a `.xml` extension). Alternatively, the resource can be a binary file, such as a GIF file.
- If the entity type is PUBLIC, you must additionaly enter a system identifier in this field.

6. The NDATA entry tells the processor that this entity is not to be parsed but to be sent to the appropriate processor. The NDATA field should therefore be used with unparsed entities only.

Dialog features
You can append, insert, and delete entities by clicking the appropriate buttons. You can also sort entities on the alphabetical value of any column by clicking the column header; clicking once sorts in ascending order, twice in descending order. You can also resize the dialog box and the width of columns.

Limitations

- An entity contained within another entity is not resolved, either in the dialog, Authentic View, or XSLT output, and the ampersand character of such an entity is displayed in its escaped form, i.e. `&`.
- External entities are not resolved in Authentic View, except in the case where an entity is an image file and it is entered as the value of an attribute of type `ENTITY` or `ENTITIES`. Such entities are resolved when the document is processed with an XSLT generated from the STYLEVISION Power Stylesheet.

9.2.4 Images

Authentic View is based on Internet Explorer, and is able to display most of the image formats that your version of Internet Explorer can display. The following commonly used image formats are supported:

- GIF
- JPG
- PNG
- BMP
- WMF (Microsoft Windows Metafile)
- EMF (Enhanced Metafile)
- SVG (requires Adobe SVG Reader plugin for Internet Explorer)

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Chapter 10

HTML to XML Conversion

10 HTML to XML Conversion

STYLEVISION 2004 can generate a schema file (DTD or XML Schema), an XML file, and stylesheets from an HTML document.

In order to generate these files from the HTML document, you import the HTML document into the Design Window of STYLEVISION and use it to build a schema tree. In the Design Document view, you select the HTML elements or attributes you wish to include in the schema, and drag-and-drop them into the desired location in the schema tree. You can also add your own nodes to the schema tree, i.e. nodes that do not come from the HTML document. After you have created the schema tree, you can edit the Design Document as you would a normal STYLEVISION Power Stylesheet. At the end of the process, you will have created (i) a schema tree, and (ii) a STYLEVISION Power Stylesheet.

HTML-to-XML conversion steps
The HTML-to-XML conversion process consists of the following steps. Each step of the process is described in detail in the tutorial that follows this section.

1. Import the HTML file into STYLEVISION. The HTML will be displayed without markup tags in the Design Document view of STYLEVISION. At the same time a schema tree with a single element—a document element called `Root`—is created in the Schema Window.
2. Create the schema tree by (i) dragging nodes from the HTML document to the required location in the schema tree; and, optionally, (ii) adding your own nodes to the schema tree. In the Design Window, HTML content that has been used to build nodes in the schema tree will now be displayed with node tags around the content. HTML content that has no corresponding schema node will continue to be displayed without tags.
3. In the Design Document, assign formatting to nodes, refine processing rules, or add static content as required. These modifications will have an effect only on the STYLEVISION Power Stylesheet and the generated XSLT. It will not have an effect on either the generated schema or XML file.
4. After you have completed the schema tree and the design of the STYLEVISION Power Stylesheet, you can generate and save the following:

    - a schema (DTD or XML Schema) corresponding to the schema tree you have created;
    - an XML file based on the schema tree;
    - a STYLEVISION Power Stylesheet (`.sps` file) and/or XSLT stylesheet based on your Design Document.

Note: The generated schema and XML file are based on the schema tree you create. The STYLEVISION Power Stylesheet and XSLT are based on the Design Document.

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10.1 HTML-to-XML Tutorial

In this tutorial, you will learn how to convert an HTML page into an XML document. You will do this by creating a schema, which STYLEVISION will then use to generate the XML document. You should note that the Design Document view of STYLEVISION, which displays a browser view of the source HTML document, is simultaneously a view of the STYLEVISION Power Stylesheet. You can save this STYLEVISION Power Stylesheet and also generate an XSLT from it.

In this tutorial, you will create and generate:

- An XML Schema: **`article.xsd`**
- An XML file based on this schema (with content from the HTML document): **`article.xml`**
- A STYLEVISION Power Stylesheet: **`article.sps`**
- An XSLT stylesheet: **`article.xslt`**

For this tutorial, you require the file **`article.html`**, which is in the **`Altova/STYLEVISION 2004/Examples`** folder.

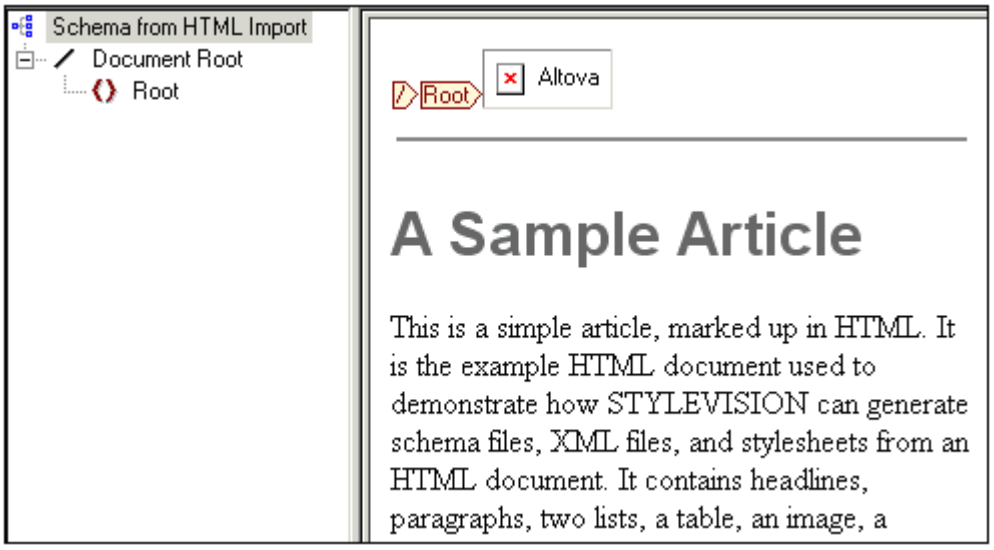
This tutorial consists of the following broad steps:

1. Open the file `article.html`.
2. Create the schema tree; this part forms the bulk of the tutorial.
3. Generate and save the output files.

If you need more details about STYLEVISION features that are used to create STYLEVISION Power Stylesheets, please see the STYLEVISION Tutorial and User Reference.

10.1.1 Opening the HTML

Open the file **`article.html`** in STYLEVISION by clicking **HTML Import | Import HTML file...** or **File | Import HTML file...** and browsing for `article.html`. This file is in the `Altova/STYLEVISION 2004/Examples` folder. In STYLEVISION, `article.html` will be displayed in the Design Document window.


Schema from HTML Import
Document Root
Root
/ Root
Altova
A Sample Article
This is a simple article, marked up in HTML. It is the example HTML document used to demonstrate how STYLEVISION can generate schema files, XML files, and stylesheets from an HTML document. It contains headlines, paragraphs, two lists, a table, an image, a

Note the following points:

- The HTML document is displayed without tags except for a **`Root`** tag.
- The schema tree in the Schema Window shows the Document Root with only one node, a document element called **`Root`**.
- There is only the Root Template. There are no global templates.

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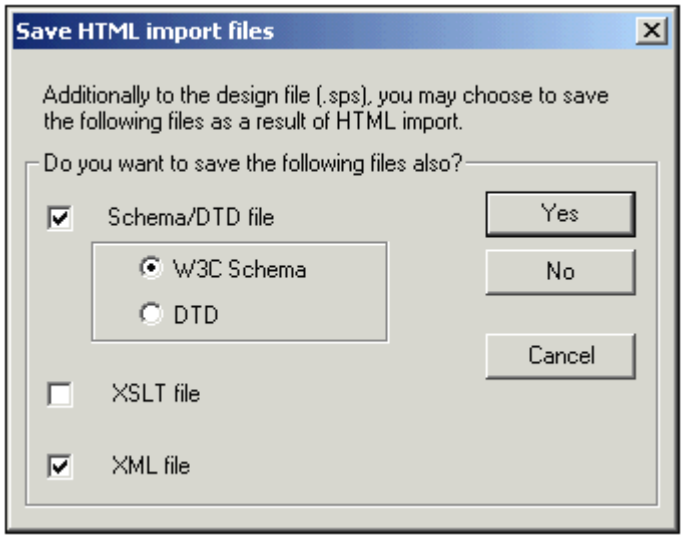
10.1.2 The starting schema and XML files

Now, without adding anything to the schema, generate and save the XML Schema and the XML files. Do this by clicking **File | Save Design**. The following dialog pops up:


Save HTML import files
Additionally to the design file (.sps), you may choose to save the following files as a result of HTML import.
Do you want to save the following files also?
Schema/DTD file
W3C Schema
DTD
XSLT file
XML file
Yes
No
Cancel

Make the selections as shown above, and click **Yes**. Save the XML Schema as `article.xsd` and the XML file as `article.xml`. You will also be asked whether you wish to save an SPS file. Do so, using the name `article.sps`. Now do the following:

- Open `article.xsd` in an XML editor like XMLSPY 2004 or in a text editor. You will see that it has only one element, named `Root`. This is because the schema tree in STYLEVISION from which it was generated contains only this one element.
- Now open `article.xml` in an editor program. The document has an empty `Root` element only. This is because `article.xsd`, on which the XML file is based, has just the one `Root` element.

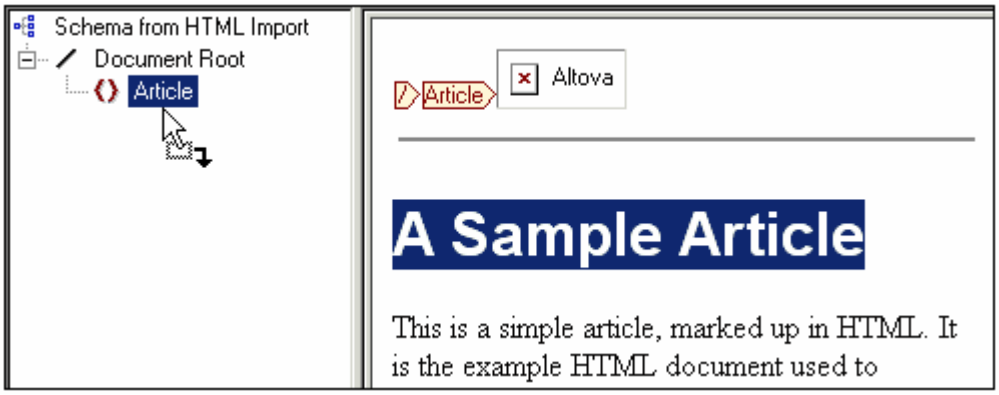
The important point to note is that the XML document is generated on the basis of the schema you create in STYLEVISION. In the next sections, you will learn how to create a schema that generates the required XML file.

10.1.3 Creating element nodes

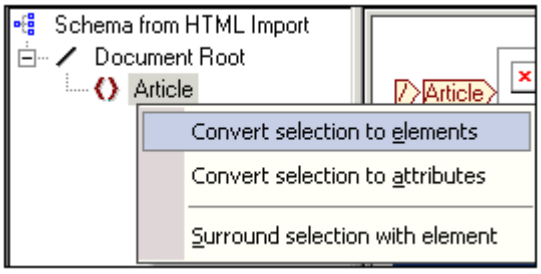
Renaming schema elements
Rename the element `Root` to `Article` by right-clicking `Root` in the schema tree, selecting **Rename**, and keying in the new name `Article`. Notice that the name changes in the both the schema tree as well as the Design Document.

Creating HTML content as an element

1. In the Design Document, select the article title "A Sample Article".
2. Drag the selection to the `Article` node in the schema tree till the pointer becomes a right-and-down arrow .



3. This indicates that the selected HTML content will be created as a child node (element or attribute) of `Article`; in other words, that a child node of `Article` will be created around the selected content. When you release the mouse button, the following menu pops up.



4. Select **Convert selection to elements** to create the selected HTML content as a child element node of `Article`.

5. In the schema tree, the new child node is created with a default name of `NewNode`. That it is created as contents (i.e. it has text content) is indicated by the (···) symbol. In the Design Document, the selected HTML content is converted to the familiar `(contents)`

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placeholder of the STYLEVISION Power Stylesheet, and the start and end of the node is indicated with tags.

6. Right-click `NewNode` in the schema tree and rename it to `Title`. Notice that the node name in the tags in the Design Document also changes.

Note:

The following points should be noted:

- When you drag selected content into the Schema Window and prepare to drop, the type of arrow that appears indicates whether the dragged node can be created as a child (right-and-down arrow) or a sibling (down arrow).
- In the above example, you converted the selection to elements. This action changes the selected HTML content to a `(contents)` placeholder. This kind of a node is indicated in the schema tree by the symbol. Alternatively, you could have selected **Surround selection with element**., which would have created an element node around the selected HTML content, but would have left the HTML content as static text (nt dynamic text, indicated by the `(contents)` placeholder). Such an element node is indicated in the schema tree by the symbol.

Now click **File | Save** to save the schema and XML files. If you look at the XML file, it should look something like this:

```
<Article xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:noNamespaceSchemaLocation="C:\workarea\html2xml\article.xsd">
   <Title>A Sample Article</Title>
</Article>
```

The document element is `Article` and it has a child `Title` element, which has the selected HTML content as its content.

Creating HTML content as an empty element node

If when creating the `Title` node in the schema tree, you had selected Surround selection with element, the `Title` node would appear in the XML document, **but it would be empty**; the selected HTML content would not be passed on to the XML document as the content of the `Title` element. You can try this out by doing the following:

1. In the schema tree, right-click `Title` and select Delete. This deletes the node in the schema tree, and restores the `(contents)` placeholder to its original text form: *A Sample Article*.
2. Select the title text, drag it to the schema tree so it will be a child of Article, and after dropping it select **Surround selection with element**.

Notice that instead of a `(contents)` placeholder being created, the original text remains and is surrounded by the start and end tags of the new node.

3. Rename `NewNode` to `Title`.
4. Save the schema and XML files.

If you look at the XML file, you will find that the `Title` element is empty.

```
<Article xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
         xsi:noNamespaceSchemaLocation="C:\workarea\html2xml\article.xsd">
   <Title/>
</Article>
```

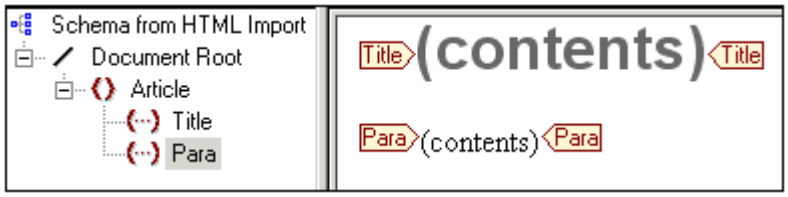
This is the main difference between (i) converting the selection to elements and (ii) surrounding the selection with an element node. But in the latter case, why is the `Title` element empty although the Design Document displays the text *A Sample Article* as the contents of the node? The text in the Design Document in this case is static text that will be included in the STYLEVISION Power Stylesheet. What you need to remember is that for HTML content to appear as element content in the XML document, the Design Document has to display that HTML content as a `(contents)` placeholder. All actual text in the Design Document—as is the case with STYLEVISION Power Stylesheets—is static text.

Undos

Now undo your changes till the `Title` element is again represented by the `(contents)` placeholder in the Design Document. Notice that the Undo command works even though the file has been saved. **Do not delete** the `Title` element. If you delete the `Title` element that has been created to surround content, any static content that is contained in that element in the Design Document will also be deleted. In this case, this is not what we want.

Adding more children elements

Now convert the first HTML paragraph into a `Para` element that is a child of `Article`. Your schema tree and Design Document should look like this when you have finished:



Do not convert the second HTML paragraph into an element.

Additional elements

In the schema tree, you can also add elements that do not correspond to any HTML content. You can right-click a node and, from the context menu that pops up, choose whether to add a child element, insert a sibling element before the selected node, or append a sibling element.

Now do the following:

1. Right-click the `Article` node and, from the context menu, select **Add Child element**. Notice that Insert element and Append element are grayed out. This is because `Article` is the document element and cannot have any sibling.

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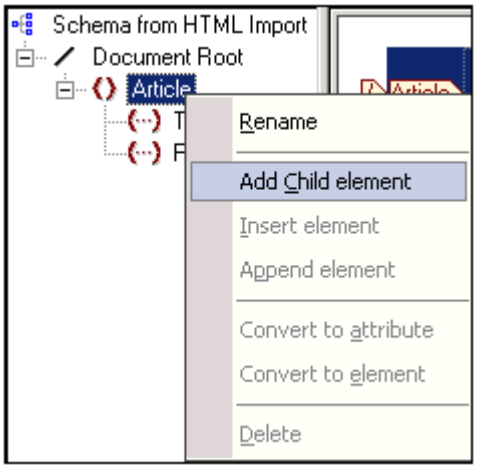


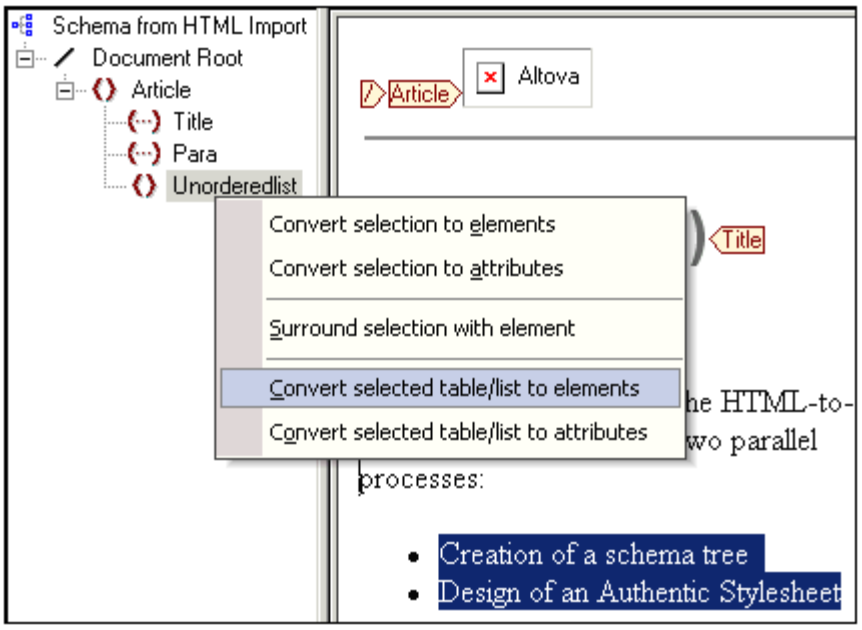
2. Name the newly created node `Unorderedlist`.

We will create the unordered list in the next section.

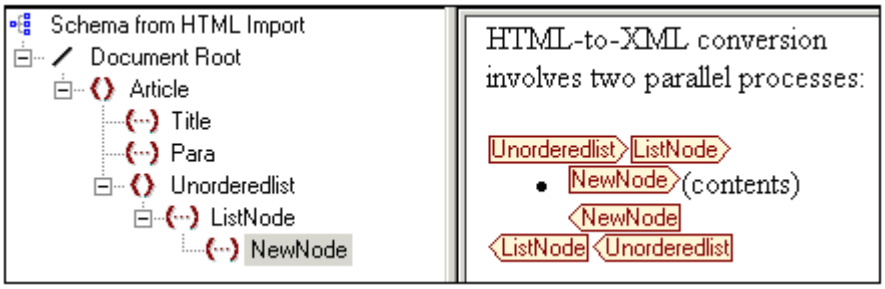
10.1.4 Importing an HTML list

You can import the unorderedlist HTML list as an XML structure in the following way:

1. Select the bulleted list in the Design Document and drop it into the schema tree as a child of `Unorderedlist`. The following menu pops up:



2. Select Convert selected table/list to elements, and in the next dialog, "as dynamic list". This creates a `ListNode` element that contains a child element `NewNode`.



   Notice how the list is displayed with a `(contents)` placeholder in the Design Document.
3. Rename the `NewNode` element to `Para`.

Now save your STYLEVISION document and look at the newly saved XML file.

```
<Article xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:noNamespaceSchemaLocation="C:\workarea\html2xml\article.xsd">
   <Title>A Sample Article</Title>
   <Para>This is a simple article, marked up in HTML. It is the example
         HTML document used to demonstrate how STYLEVISION can generate
         schema files, XML files, and stylesheets from an HTML document.
         It contains headlines, paragraphs, two lists, a table, an image,
         a hyperlink, horizontal rules, and inline italics. A number
         of these elements have attributes.</Para>
   <Unorderedlist>
      <ListNode>
         <Para>Creation of a schema tree </Para>
```

```
      </ListNode>
      <ListNode>
         <Para>Design of an Authentic Stylesheet </Para>
      </ListNode>
   </Unorderedlist>
</Article>
```

Note:

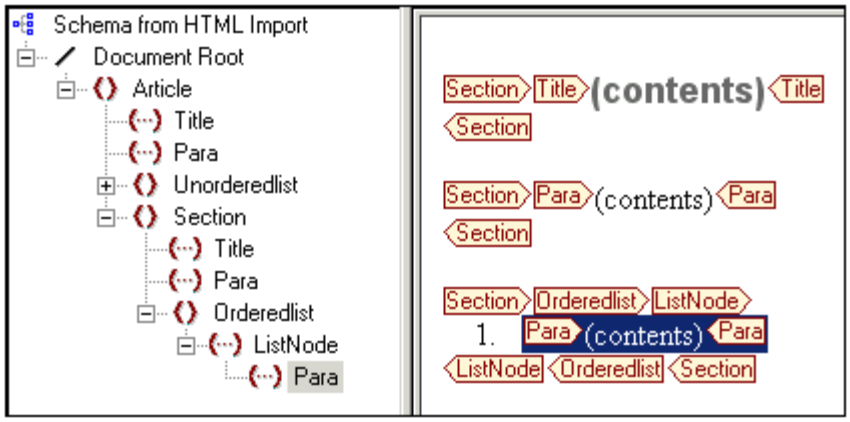
- Notice that for all elements created with `(contents)` placeholders, the corresponding HTML content is imported into the XML file. Notice also that the second HTML paragraph, for which no element was created, has not been imported into the XML document.
- In the schema file, `article.xsd`, notice that all the newly created element types are global elements. The `Para` element in `ListNode` is created by referencing the global element `Para`.
- If you need to use Global Templates in your STYLEVISION Power Stylesheet, then you should use the generated schema to build the STYLEVISION Power Stylesheet.

10.1.5 Creating a section

Now create a lower-level section for your article. To do this you repeat steps you have learned earlier.

1. Add an element called `Section` as a child of `Article`.
2. Select the HTML headline "Output" and create it as the `Title` child of `Section`.
3. Select the first paragraph after "Output" and create it as a `Para` child of `Section`.
4. Select the numbered list and import it as a list child of `//Section/Orderedlist`.

When you are done, your schema tree and Design Document should look like this:



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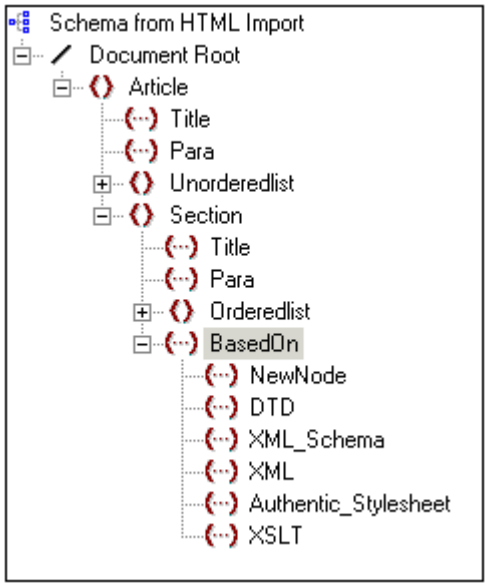
10.1.6 Importing HTML tables

You can import the HTML table into the XML document as follows:

1. Select any text fragment in the table and drag it into the Schema Window.
2. Drop it as a child of `Section`, and select Convert selected table/list to elements.
3. In the dialog that pops up select the dynamic table option; the top/down option; and the with-header option.
4. Rename `TableNode` to `BasedOn`. Your schema tree should now look like this:



Save the STYLEVISION document and view the table markup in the XML file:

```
<BasedOn>
   <NewNode>Schema Tree</NewNode>
   <DTD>•</DTD>
   <XML_Schema>•</XML_Schema>
   <XML>•</XML>
   <Authentic_Stylesheet> </Authentic_Stylesheet>
   <XSLT> </XSLT>
</BasedOn>
<BasedOn>
   <NewNode>Authentic Stylesheet</NewNode>
   <DTD> </DTD>
   <XML_Schema> </XML_Schema>
   <XML> </XML>
   <Authentic_Stylesheet>•</Authentic_Stylesheet>
   <XSLT>•</XSLT>
</BasedOn>
```

Let us make two changes to this markup: (i) Create a parent element called `Output` for the `BasedOn` element, and (ii) Convert the `NewNode` child element of `BasedOn` to a child attribute and rename the attribute to `Type`. This is how you would do it.

To create a parent for `BasedOn`, do the following in STYLEVISION:

1. Right-click the `BasedOn` element in the schema tree.
2. Select Insert element.
3. Rename the new element to `Output`.
4. Drag `BasedOn` onto `Output` till the symbol indicating creation as child element appears, and then drop it.

Converting the `NewNode` child element to an attribute is described in the next section Creating schema attributes.

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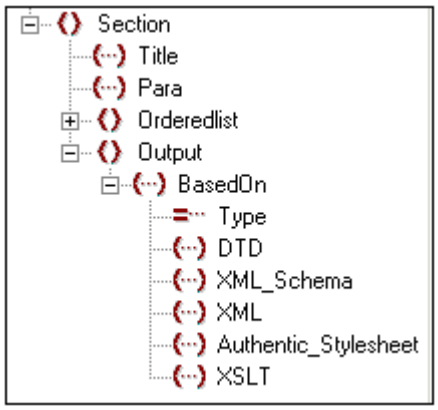
10.1.7 Creating schema attributes

Converting elements to attributes

To convert the `NewNode` child element of `//Output/BasedOn` to a child attribute, right-click `NewNode` and select Convert to attribute. Then rename `NewNode` attribute to `Type`. This part of the schema tree will look like this:



The relevant XML file fragment will look like this:

```
<Output>
   <BasedOn Type="Schema Tree">
      <DTD>•</DTD>
      <XML_Schema>•</XML_Schema>
      <XML>•</XML>
      <Authentic_Stylesheet> </Authentic_Stylesheet>
      <XSLT> </XSLT>
   </BasedOn>
   <BasedOn Type="Authentic Stylesheet">
      <DTD> </DTD>
      <XML_Schema> </XML_Schema>
      <XML> </XML>
      <Authentic_Stylesheet>•</Authentic_Stylesheet>
      <XSLT>•</XSLT>
   </BasedOn>
</Output>
```

Creating HTML content as attributes

You can create attributes from HTML content by dragging the selected content to the element node for which you want to make this content an attribute. Create an attribute as follows:

1. Select the words "Altova GmbH" in the Copyright line at the bottom of the HTML document.
2. Drop it into the schema tree as a child of the `Article` element.
3. In the context menu, select **Convert selection to attributes**.
4. Name the attribute `Copyright`.

In the same way, select the text "2004" in the same Copyright line, and create it as an attribute `Year` of the `Article` element.

Moving nodes in the schema tree

Both these attributes will be appended to the bottom of the schema tree. If you like, you can drag them up the tree till they are just below `Article`.

10.1.8 Importing an HTML image

Now you will import an image into the XML file. STYLEVISION recognizes an HTML image and imports the value of the <img> element's src attribute as the content of element or attribute according to how you want this content created.

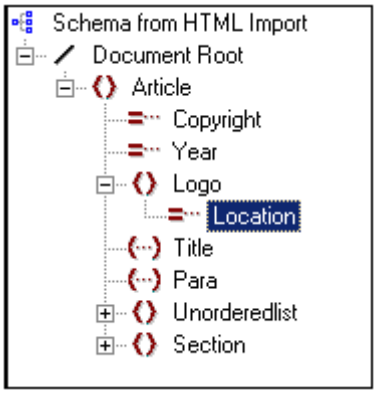
Creating the image source as attribute value
To import the image as an attribute value of an element, do the following:

1. Create an element Logo as a child of Article.
2. Select the image in the Design Document.
3. Drop it in the schema tree as a child of the Article element.
4. In the context menu that appears, select **Convert selection to attributes**.
5. Enter Location as the name of the attribute.

If you now check the XML file, you will find the element Logo at the bottom of the document, and that the value of the image's src attribute has been imported as the value of the Location attribute.

```
<Logo Location="altova.gif"/>
```

You can move the element Logo to alternative locations in the schema tree. Your schema tree should now look something like this:



Creating the image source as element value
Altenatively, you could have dragged the image into the schema tree and created it as a child element of any element. In this case the value of the image's src attribute is imported as the content of the element you create it as. For example:

```
<LogoLocation>altova.gif</LogoLocation>>
```

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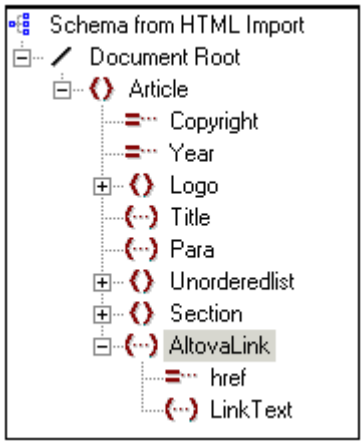
10.1.9 Converting HTML hyperlinks

STYLEVISION also allows you to import the URL and text of an HTML hyperlink. Do this in your document as follows:

1. Select the HTML hyperlink text "www.altova.com" in the Design Document.
2. Drag it into the schema tree and drop it as a child of `Article`.
3. Select **Convert selection to elements**.



4. Rename the nodes to the names shown in the screenshot.

The URL is imported to the `href` attribute of `AltovaLink` and the link text is imported as content of the element `LinkText`. The corresponding XML code should be:

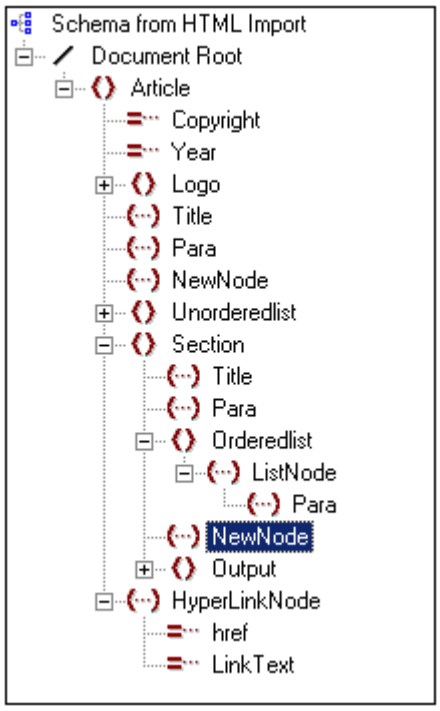
```
<AltovaLink href="www.altova.com">
   <LinkText>www.altova.com</LinkText>
</AltovaLink>
```

Note: If instead of selecting **Convert selection to elements** you had selected **Convert selection to attributes**, then the node now represented as the element `LinkText` would have been created as an attribute of `AltovaLink`.

10.1.10 Completing the import

Same-name siblings
If you look at the Design Document, you will notice that there are two HTML paragraphs that have not been imported. In order to import these into the XML document, do the following:

1. Convert each HTML paragraph into an element at the correct location in the schema tree giving each a different name. In the screenshot below, you will see that both the paragraphs have been imported as `NewNode` elements, in one case as `/Article/NewNode` and in the other as `//Section/NewNode`.



2. Save the STYLEVISION document.
3. Open the XML document and change the element names as required, for example, to `Para`.

Note: In this case, you should modify the generated schema to remove `NewNode` and possibly modify the properties of the `Para` element.

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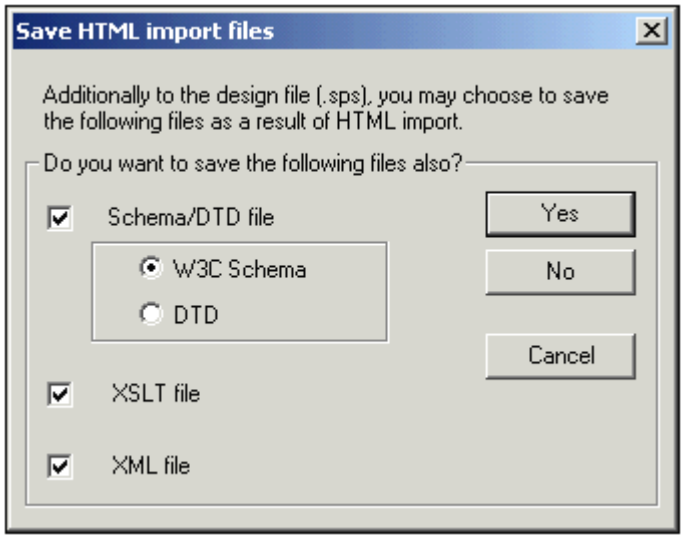
10.1.11 Generating the output

After you have completed the schema tree, you can generate and save the schema, XML file, STYLEVISION Power Stylesheet, and XSLT file. To do this, click **File | Save Design**. The following dialog appears:


Save HTML import files
Additionally to the design file (.sps), you may choose to save the following files as a result of HTML import.
Do you want to save the following files also?
Schema/DTD file
W3C Schema
DTD
XSLT file
XML file
Yes
No
Cancel

Select the file types you wish to save. The schema file and STYLEVISION Power Stylesheet must be saved. Take a look at the generated XML file. If you wish to try out some changes, go back to STYLEVISION and make the desired modifications, and re-save.

10.2 HTML-to-XML Quick Reference

This Quick Reference section covers all the commands you need to use the HTML-to-XML conversion utility of STYLEVISION effectively. The required HTML-to-XML-specific commands are available in the **File** and **HTML Import** menus.

In the **File** menu, the **Save Design** command, in addition to saving the STYLEVISION Power Stylesheet (SPS) file, also prompts you about whether you wish to save the SPS, XSLT and/or XML files.

Complementary information about the HTML-to-XML utility can be found in the HTML-to-XML Tutorial and in the User Reference section of the STYLEVISION 2004 manual.

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10.2.1 Importing the HTML file

Importing the HTML file
To import an HTML file into STYLEVISION for conversion to XML, click the menu item **HTML Import | Open HTML file...** or **File | Open HTML file...**, and select the required HTML file. The selected file will be imported into the Main Window, and a schema tree with a document element called `Root` will be created in the Schema Window.

10.2.2 Building the schema tree: 1

Creating HTML content as child or sibling
When you select HTML content and drag it to a node in the schema tree, you could create it as a child element or attribute, or as a sibling element or attribute (a sibling attribute is an attribute of the selected node's parent). The icons that appear in either case are as follows:

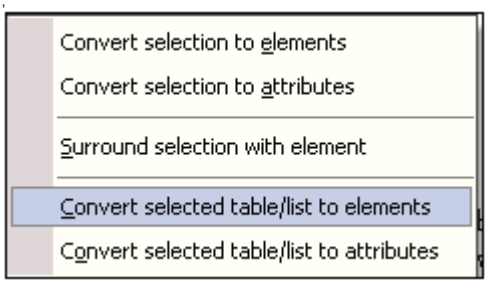
Indicates creation as child node of the highlighted schema tree node.

Indicates creation as sibling node of the highlighted schema tree node.

Some nodes can have both children and siblings. In these cases, the icon for accepting siblings appears when the cursor is moved to the left side of the node. To create a child or sibling node, release the mouse button when the appropriate icon appears.

Converting HTML content to an XML node type
After selecting whether the HTML content is to be created as a child or a sibling, you select whether it is to be created as an element with or without the HTML content; or as an attribute. If the HTML content is a list or table, you have the additional options of whether the list or table should be converted to a corresponding element or attribute structure.

After you drag HTML content to the schema tree, the following menu pops up when you release the mouse button. This menu can also be accessed by selecting the following STYLEVISION menu options **HTML Import | Add to parent**, **HTML Import | Insert**, and **HTML Import | Append**.


Convert selection to elements
Convert selection to attributes
Surround selection with element
Convert selected table/list to elements
Convert selected table/list to attributes

The commands of this context menu are described below.

Convert selection to elements
The HTML content is inserted as an element or elements into the tree. How many elements are created depends on the structure of the object. The HTML content is created as a `(contents)` placeholder and becomes the content of the element node in the generated XML document.

Convert selection to attributes
The HTML content is inserted as an attribute or as attributes into the tree. The HTML content is created as a `(contents)` placeholder and becomes the content of the attribute node in the generated XML document.

Surround selection with element
The HTML content is surrounded by an element. No `(contents)` placeholder is created, and the HTML content does not appear in the generated XML document. The content within the newly created node is static and is part of the Root Template of the generated STYLEVISION Power Stylesheet and XSLT. You can format it as you do any template in STYLEVISION.

Convert selected table/list to elements

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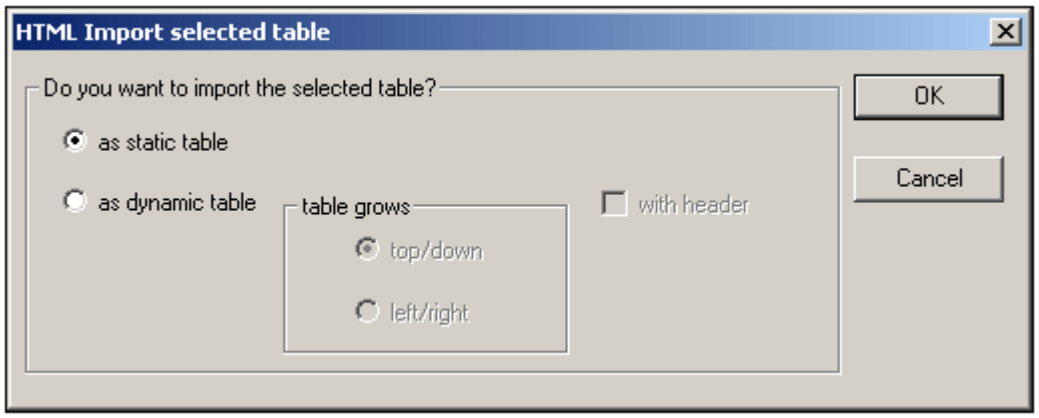
The whole HTML table or list will be imported as elements into the XML tree.

Convert selected table/list to attributes
The whole HTML table or list will be imported as attributes into the XML tree.

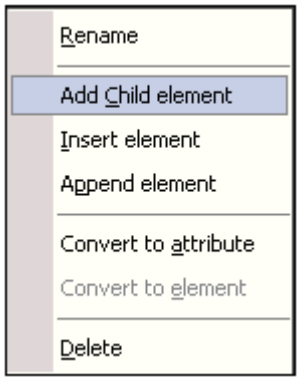
When the selected HTML content is a table and you select either **Convert selected table/list to elements** or **Convert selected table/list to attributes**, the following dialog box appears:



Creating the node as part of a table element is useful if the object is, say, a table cell and you wish to create an XML structure corresponding to the HTML table structure. For a description of static and dynamic tables, see Tables in STYLEVISION.

10.2.3 Building the schema tree: 2

You do not have to drag HTML content into the schema tree in order to be able to create elements. You can directly create elements as children or siblings of a selected node, as well as convert a selected node to an element or attribute. These commands are available in a context menu that pops up when you right-click a node.



The commands of this menu are explained below.

Rename
Allows you to rename the selected node.

Add child element
Adds a child element to the selected node.

Insert element
Inserts a sibling element before the selected node.

Append element
Appends a sibling element after the selected node.

Convert to attribute
Converts the selected element to an attribute.

Convert to element
Converts the selected attribute to an element.

Delete
Deletes the node in the schema tree. If the node was created from HTML content and if the HTML content has been created as a `(contents)` placeholder (by selecting Convert selection to elements or Convert selection to attributes when the HTML content was dropped into the schema tree), then the node is deleted in the Design Document and the original HTML content is restored. Otherwise the node is deleted from the Design Document but the original HTML content is not restored.

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10.2.4 Points to note

The following important points should be noted:

- If you wish to edit either the schema, XML file, XSLT stylesheet, or STYLEVISION Power Stylesheet after having saved them, you must open the STYLEVISION Power Stylesheet to edit and then re-save the required files. The HTML content available for editing at this stage is what is available in the STYLEVISION Power Stylesheet as static text.
- Note that unlimited Undo is supported, so you can go back as many steps as you like. You can also, therefore, save the schema, XML file, and stylesheets as often as you like, without having to worry about not being able to undo your changes.
- You can only create a Root Template for the XML document. However, all the elements you create in the schema tree are declared as global elements (or as references to global elements). If you need to use global templates for your STYLEVISION Power Stylesheet, you should save the STYLEVISION Power Stylesheet and then re-open it: the global elements will now be accessible in the Global Templates list.
- Attributes are not allowed to be added to the schema tree by right-clicking a node. If you need to add an attribute independently of HTML content, right-click the relevant node, create an element, and then convert it to an attribute (by right-clicking and selecting Convert to attribute).

Chapter 11

Appendices

11 Appendices

The appendices contain technical background information and licensing and distribution information relevant to your product. Information on the following topics is given in this section:

Technical Background Information

- XML Parser
- Schema dialects
- OS and memory requirements
- Internet usage
- Unicode support
- License metering

Licensing and Distribution

- Electronic software distribution
- Copyright
- Software product license

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11.1 Technical Background Information

This chapter contains useful background information on the technical aspects of STYLEVISION 2004. If you run across a technical term in the remainder of this help system you may occasionally find a link to some of the background materials provided here.

11.1.1 XML Parser

When opening any XML document, STYLEVISION 2004 uses its built-in incremental validating parser to both check the document for well-formedness and validate it against any specified DTD, DCD, XDR, BizTalk, or XSD Schema.

The same parser is also used while editing a document that refers to a DTD, DCD, XDR, BizTalk, or XSD Schema to provide intelligent editing help and immediately display any validation error that is encountered.

This is possible through the incremental design of the new parser that is optimized for the special needs of an integrated development environment.

The built-in parser implements the new May 2nd Final Recommendation XML Schema from the W3C and we are constantly tracking the W3C Schema Group's efforts and are actively participating in all Schema-related discussions to provide you with a state-of-the-art development environment.

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11.1.2 Schema Dialects

An important aspect of XML is the area of schemas and DTDs that define the logical structure (or content model) of an XML document - STYLEVISION 2004 is the ideal tool that integrates schema and DTD creation while working with XML instance documents.

STYLEVISION 2004 supports both editing and schema-validation of the following schema kinds:

- Document Type Definitions (DTD)
- Document Content Descriptions (DCD)
- XML-Data Reduced (XDR)
- BizTalk
- XML Schema Definition (XSD) draft April 7, 2000, CR Oct. 24 2000, May 2nd 2001 Final Recommendation

and can validate an XML instance document against any of the above schema dialects.

11.1.3 OS & Memory Requirements

STYLEVISION 2004 is a modern 32-bit Windows application that runs on Windows 98, NT 4.0, Windows 2000 and Windows XP. It requires a fair amount of memory to be installed in the system, because it loads each document fully into memory.

On the other hand it typically requires less memory than many Java-based applications, because it is written entirely in C++ and thus does not require the overhead of a Java runtime environment.

Having documents in main memory is necessary to completely parse and analyze each document, and to also improve the viewing and editing speed during normal work. While editing a small to medium sized document (up to 512kB) is possible in as little as 2MB of RAM, opening a 5MB document can consume up to 50MB during the initial parsing process.

Memory requirements are also influenced by the unlimited Undo history. When repeatedly cutting and pasting large selections in large documents, memory can rapidly be depleted.

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11.1.4 Internet Usage

STYLEVISION 2004 is an integrated development environment for XML and as such will, also initiate Internet connections on your behalf in the following situations:

- If you click the "Request evaluation key-code" in the registration dialog the three fields in the registration dialog box are transferred to our web server by means of a regular http (port 80) connection and the free evaluation key-code is sent back to the customer via regular SMTP e-mail.

All this communication is, of course, only initiated in response to a direct request from you! XML is, after all, related to the Internet and thus any XML development tool must have access Internet protocols to provide an efficient environment for the everyday duties of any XML developer.

11.1.5 Unicode Support

Unicode is the new 16-bit character-set standard defined by the Unicode Consortium that provides a unique number for every character,

- no matter what the platform,
- no matter what the program,
- no matter what the language.

Fundamentally, computers just deal with numbers. They store letters and other characters by assigning a number for each one. Before Unicode was invented, there were hundreds of different encoding systems for assigning these numbers. No single encoding could contain enough characters: for example, the European Union alone requires several different encodings to cover all its languages. Even for a single language like English, no single encoding was adequate for all the letters, punctuation, and technical symbols in common use.

These encoding systems used to conflict with one another. That is, two encodings used the same number for two different characters, or different numbers for the same character. Any given computer (especially servers) needs to support many different encodings; yet whenever data is passed between different encodings or platforms, that data always runs the risk of corruption.

Unicode is changing all that!
Unicode provides a unique number for every character, no matter what the platform, no matter what the program, and no matter what the language. The Unicode Standard has been adopted by such industry leaders as Apple, HP, IBM, JustSystem, Microsoft, Oracle, SAP, Sun, Base and many others.

Unicode is required by modern standards such as XML, Java, ECMAScript (JavaScript), LDAP, CORBA 3.0, WML, etc., and is the official way to implement ISO/IEC 10646. It is supported in many operating systems, all modern browsers, and many other products. The emergence of the Unicode Standard, and the availability of tools supporting it, are among the most significant recent global software technology trends.

Incorporating Unicode into client-server or multi-tiered applications and web sites offers significant cost savings over the use of legacy character sets. Unicode enables a single software product or a single web site to be targeted across multiple platforms, languages and countries without re-engineering. It allows data to be transported through many different systems without corruption.

Even though XML is clearly defined to be based on the Unicode standard, STYLEVISION 2004 is still one of the few XML development tools that *fully* implements Unicode!

Windows NT 4.0 & Windows 2000

Starting with version 2.0 STYLEVISION 2004 provided full Unicode support in the Windows NT and Windows 2000 version of the software. To edit any XML document from a non-roman writing system you will, however, also need a font that supports the Unicode characters being used by that document.

Windows NT typically includes support for all common single-byte writing-systems in its Arial, Times, and Courier New fonts and will additionally include all required fonts for the writing-system in your own country (i.e. if you install the Japanese version of Windows NT you will automatically have fonts that support the Katakana, Hiragana, and Kanji writing-systems as well as the input-methods and dictionaries to enter Kanji and to switch between Katakana and Hiragana). If you wish to edit any document from a foreign writing-system, you may want to install additional Windows NT components for that writing-system or purchase special Unicode fonts for these writing-systems (such fonts are available from all leading type vendors).

Please note that most fonts only contain a very specific subset of the entire Unicode range and are therefore typically targeted at the corresponding writing system. Consequently you may encounter XML documents that contain "unprintable" characters, because the font you have selected does not contain the required glyphs. Therefore it can sometimes be very useful to have a font that covers the entire Unicode range - especially when editing XML documents from all over the world.

The most universal font we have encountered is a typeface called "Arial Unicode MS" that has been created by Agfa Monotype for Microsoft. This font contains over 50.000 glyphs and covers the entire set of characters specified by the Unicode 2.1 standard. It needs 23MB and is included with Microsoft Office 2000.

We highly recommend that you install this font on your system and use it with STYLEVISION 2004, if you are often editing documents in different writing systems. This font is not installed with the "typical" setting of the Microsoft Office setup program, but you can choose the Custom Setup option to install this font.

In the "Examples" folder you will also find a new XHTML file called "Unicode-UTF8.xml" that contains the sentence "When the world wants to talk, it speaks Unicode" in many different languages ("Wenn die Welt miteinander spricht, spricht sie Unicode") and writing-systems ("世界的に話すなら、Unicode です") - this line has been adopted from the 10th Unicode conference in 1997 and is a beautiful illustration of the importance of Unicode for the XML standard. Opening this file will give you a quick impression on what is possible with Unicode and what writing systems are supported by the fonts available on your PC installation.

Windows 98/ME

These Windows versions do not include full Unicode capabilities on the operating system layer. Instead support for non-roman writing-systems is provided through so-called code-pages that contain all the required characters mapped to either the available byte-values in the range of 0x80 to 0xFF (in case of single-byte systems, such as Cyrillic or Hebrew) or as double-byte values, where the first most significant bit of the first byte is typically used to indicate that this is a so-called "wide character" (in case of CJK writing-systems).

We therefore provider a special Windows 98/ME version of STYLEVISION 2004 that is automatically installed whenever you are using the Setup program on these operating systems. This version of STYLEVISION 2004 supports the following code-pages for viewing and editing XML documents (for good background information about code-pages please refer to Character Sets at Cyzborra).

Code-page	Equivalent XML Encoding
1252	ISO-8859-1 (Western, Latin-1)
1250	ISO-8859-2 (Eastern Europe, Latin-2)
1251	ISO-8859-5 (Cyrillic)
1253	ISO-8859-7 (Greek)
1254	ISO-8859-9 (Turkish)
1255	ISO-8859-8 (Hebrew)
1256	ISO-8859-6 (Arabic)
874	ISO-8859-11/TIS-620 (Thai)
932	Shift-JIS (Japanese)
936	GB2312 (Chinese)
949	EUC-KR (Korean)
950	Big5 (Taiwanese)

Whenever you open an XML file, STYLEVISION 2004 detects the character-set encoding used in that file, expands the file to an internal full Unicode representation and then transforms the document to a code-page supported by Windows 98 in order to enable viewing and editing of

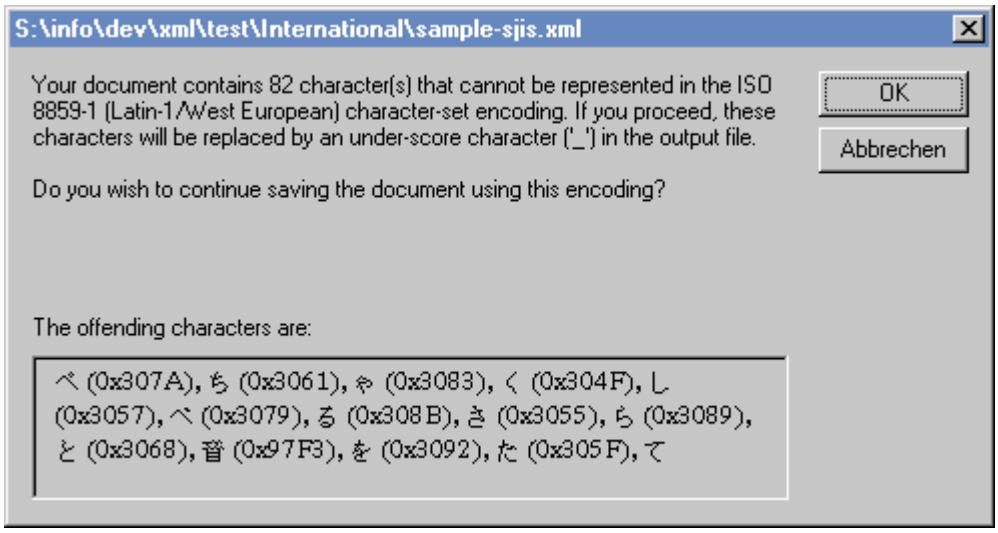
the document.

In most cases this process will be entirely automatic, as the available ISO-8895-x encodings as well as some of the CJK encodings often correspond with a certain code-page. However, if you open a Unicode encoded file (e.g. UTF-8 or UTF-16) STYLEVISION 2004 will be unable to determine which code-page to use and will thus bring up a dialog box that asks you to specify a code-page to be used for editing.

In order to correctly view and edit a Unicode file under Windows 98/ME it is extremely important that you use this dialog box to:

a) choose the correct code-page that includes all characters contained in the file and
b) later select a font and script from the settings dialog box that also supports the same code-page.

If the file contains any characters that are not available in the selected code-page, the user will receive an error message including a detailed list of offending characters before they will be replaced by a '_' (underscore).


S:\info\dev\xml\test\International\sample-sjis.xml
Your document contains 82 character(s) that cannot be represented in the ISO 8859-1 (Latin-1/West European) character-set encoding. If you proceed, these characters will be replaced by an under-score character ('_') in the output file.
Do you wish to continue saving the document using this encoding?
OK
Abbrechen
The offending characters are:
べ (0x307A), ち (0x3061), ゃ (0x3083), く (0x304F), し (0x3057), べ (0x3079), る (0x308B), さ (0x3055), ら (0x3089), と (0x3068), 音 (0x97F3), を (0x3092), た (0x305F), て

We therefore highly recommend using only the Windows NT/2000 version of STYLEVISION 2004 for editing XML files that make full use of Unicode!

Right-to-Left Writing Systems

Please note that even under Windows NT 4.0 any text from a right-to-left writing-system (such as Hebrew or Arabic) is not rendered correctly except in those countries that actually use right-to-left writing-systems. This is due to the fact that only the Hebrew and Arabic versions of Windows NT contains support for rendering and editing right-to-left text on the operating system layer.

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11.1.6 License Metering

STYLEVISION 2004 has a built-in license metering module that helps you in avoiding any unintentional violation of our license agreement. STYLEVISION 2004 can be licensed either as a single-user or multi-user software and depending on your license, this license-metering module makes sure, that no more than the licensed number of users are using STYLEVISION 2004 concurrently.

This license-metering technology uses your local area network (LAN) to communicate between instances of STYLEVISION 2004 running on different computers.

Single license
When STYLEVISION 2004 starts up, it sends a short broadcast datagram to find any other instance of the product running on another computer in the same network segment. If it doesn't get any response, it will open a port for listening to other instances of STYLEVISION 2004. Other than that, it will do nothing at all in a single-user situation. If you are not connected to a LAN or are using dial-up connections to connect to the Internet, STYLEVISION 2004 will NOT generate any network traffic at all.

Multi license
If more than one copy of STYLEVISION 2004 is used within the same LAN, they will briefly communicate with each other on startup, to exchange their key-codes to ensure that the number of concurrent licenses purchased is not accidentally violated, as additional copies of the product are launched by more users.

This is the same kind of license metering technology, that is common in the Unix world and with many other database development tools and allows our customers to purchase reasonably-priced concurrent-use multi-user licenses (see http://www.xmlspy.com/order for our price list).

Please note, that STYLEVISION 2004 is at no time attempting to send any information out of your LAN, or over the Internet. We are also deliberately sending very few and small network packets so as to not put a burden on any network. The TCP/IP ports (2799) used by STYLEVISION 2004 are officially registered with the IANA see http://www.isi.edu/in-notes/iana/assignments/port-numbers for details) and our license-metering module is a proven and tested technology.

If you are using a firewall, you may notice communications on port 2799 between the computers that are running STYLEVISION 2004. You are, of course, free to block such traffic between different groups in your organization, as long as you can ensure by other means, that your license agreement is not violated.

You will also notice, that STYLEVISION 2004 contains many useful functions that make use of your Internet connection, but these are unrelated to the license-metering technology.

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- you can be sure to always get the latest version of our software
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